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INDEX

Articles marked with a † were published in the proceedings of the New York Academy of Medicine, Section on Laryngology and Rhinology. Those marked with an * were published in the proceedings of the Philadelphia Laryngological Society, and those marked with a ‡ were published in the proceedings of the American Laryngological, Rhinological and Otological Society.

A

ABRAHAM, J. H.—Case of streptococcal pan-sinusitis: meningeal irritation: acute multiple arthritis .... †622
Acceptance of bronze tablets and memorabilia—Carter, W. W....... †64
Accessory sinuses of the nose; Conservative treatment of suppuration of the,—Gleason, E. B. 963
Accessory sinuses of the nose; Physiologic and pathologic relations of the eye and,—Wylie, C. B. 496
Accessory sinus suppuration; Vaccine treatment in,—Skillern, R. H. 676, *769
Acute phlegmonous epiglottiditis Lederman, M. D. 25
Adenoid vegetations in public school children in New York City; Hypertrophied tonsils and, —Baker, S. J..........143, †231, †547
Adenotome; A new modification of an old,—Heath, A. C. 155
Affections of the lingual tonsil and their treatment—Biedert, C. C... 885
Air we breathe: a study of temperature, humidity and dust contents—Hubbard, T. 750
Allport's speculum; Brain explorer and two modifications of, —Gifford, H. 47
Alveolar processes; Some gateways of cryptogenic infection. The,—Haskin, W. H..........169, ‡609
AMBERG, E.—Two modified forceps 543
Anesthesia; Chloroform — Grayson, C. P. *704
Anesthesia; Ether,—Ridpath, R. F. *706
Anesthesia in aural surgery—Doran, W. G. 600
Anesthesia; Intra-tracheal insufflation,—Müller, G. P..........*703
Anesthesia; Oil-ether colonic,—Gwathmey, J. F. *702
Anesthetics; Hyoscin and morphin as a preliminary to local, —Hurd, L. M. 951
Another unusual laryngeal tumor. Specimen. A curious esophageal experience. Skiagraph and foreign body. — Arrowsmith, H. ....531, †227
Apparatus designed for the purpose of giving an approximately accurate quantitive hearing test. —Downey, J. W. 820
ARROWSMITH, H.—A case of recurrent naso-pharyngeal fibroma....†695
ARROWSMITH, H.—Another unusual laryngeal tumor. Specimen. A curious esophageal experience. Skiagraph and foreign body 531, †227
ARROWSMITH, H.—Illuminator for Killian's suspension laryngoscope ....†700
ARROWSMITH, H.—Modification of the Sluder tonsillectome ....†700
Asepsis in office practice—Crane, C. G. 606
Asthma and report of a very severe case cured by intra-nasal surgery; A few interesting points in regard to bronchial,—Patton, W. 982
Atrophic rhinitis; treatment with scarlet red.—Wood, W. C...503, ‡609
Aural complications of the exanthemata.—Borden, C. R. C. 773, ‡1011
Aural complications of the exanthemata; The etiology, diagnosis and treatment of the,—Friedberg, S. A..........783, ‡1011
Aural surgery, Anesthesia in,—Doran, W. G. 600

B

Bacteremia; The clinical significance of,—Sheppard, J. F.........‡1006
Bacterins in the treatment of diseases of the ear.—Coats, G. M. 677, *769

Bacterins in the treatment of diseases of the nose and throat; The use of,—Lewis, F. O. 673, *769
Baker, S. J.—Hypertrophied tonsils and adenoid vegetations in public school-children in New York City 143, †231, †547
Baldwin, K. W.—The violet ray and ozone of use in nose, throat and ear conditions 42
Barany's theory of cerebellar localization: Diagnostic value of the pointing test in cerebellar abscess.—Kerrison, P. D. 192
Barnhill, J. F.—The environmental surgery of oto-laryngology 948
Biedert, C. C.—Acections of the lingual tonsil and their treatment 885
Black, W. D.—Case reports 149
Borden, C. R. C.—Aural complications of the exanthemata 773, ‡1011
Brain abscess; Diagnosis and treatment of,—Sharpe, W. 200, ‡612
Brain explorer and two modifications of Allport's speculum.—Gifford, H. 47
Brain infection from sinus disease—Freudenthal, W. **12**
Bronchial asthma and report of a very severe case cured by intranasal surgery; A few interesting points in regard to,—Patton, W. 982
Bronchi and esophagus; The use of the bronchoscope in direct examination of the larynx, trachea,—Schoonmaker, P. 667
Bronchi; On the use of electromagnets in the extraction of metallic bodies from the trachea and, with report of cases.—Iglauer, S. 33
Bronchi removed by the bronchoscope; Two very interesting cases of foreign bodies in the,—Shurley, B. R. *894
Broncho-esophagoscopy. — Carpenter, E. W. 534
Broncholith removed from the trachea and right bronchus.—Yankauer, S. †698
Bronchoscope in direct examination of the larynx, trachea, bronchi and esophagus; The use of,—Schoonmaker, P. 667
Bronchoscope in the out-patient department; Routine use of the,—Ridpath, R. F. 942, *960
Bronchus of a child; Watermelon seed removed from left,—Yankauer, S. †892
Bronchus; Report of three cases of foreign bodies removed from the,—Yankauer, S. †556
Bryant, W. S.—Treatment of purulent cerebrospinal meningitis ‡1009
Butler, R.—A contribution to the anatomy of the tympanic cavity 851

C

Cadwallader, B.—Elimination of speech and voice defects 986
Caloric vestibular reaction with operative findings; Two cases of loss of,—Dench, E. B. 792
Carmody, T. E.—Histo-pathology of the faucial tonsil 587
Carmody, T. E.—Tuberculosis of the parotid gland 873
Carpenter, E. W.—Broncho-esophagoscopy 534
Carpenter, E. W.—Death of an infant caused by fragment of peanut in left lung 190
Carter, W. W.—Acceptance of bronze tablets and memorabilia †64
Carter, W. W.—Introduction of Dr. Delavan †58
Carter, W. W.—Introduction of Dr. Wagner †55
Carter, W. W.—Operations for the correction of deformities of the nose. Practical demonstration of bridge-splint and bone transplantation operations on the cadaver *74
Carter, W. W.—Successful removal of thyroid gland weighing 602 grammes from girl 13 years of age. Presentation of patient and specimen †697
Cavernous sinus; The orbital approach to the,—Mosher, H. P. 709
Case of complete bilateral bony occlusion of both nasal choanae.—Pfingst, A. O. 179
Case of purpura hemorrhagica.—Gleason, E. B. 183
Case of purpura hemorrhagica.—Goldstein, M. A. 1
Case of supplemental vicarious menstruation cured by submucous resection of nasal septum.—Patton, W. T. 184
Case reports.—Black, W. D. 149
Cerebellar abscess; Barany's theory of cerebellar localization: Diagnostic value of the pointing test in,—Kerrison, P. D. 192, ‡612

Cerebellar localization; Barany's test of, Diagnostic value of the pointing test in cerebellar abscess.—Kerrison, P. D. ......192, ‡612

Charlton, C. C.—Retro-pharyngeal abscess with rupture, asphyxiation and death following an acute attack of tonsillitis...... 985

Choanae; A case of complete bilateral bony occlusion of both nasal,—Pfingst, A. O. 179

Coates, G. M.—Bacterins in the treatment of diseases of the ear 677, *769

Coates, G. M.—Presentation of a case of specific perforation of the soft palate *642

Cobb, E.—Good results from use of normal horse serum in a case of hemorrhage from a ruptured esophageal vein 154

Cocks, G. H.—Chronic frontal sinusitis suppuration complicated by epidural and orbital abscesses ....†635

Cocks, G. H.—Dentigerous cyst of superior maxilla ....†765

Cocks, G. H.—Tuberculosis of the maxillary antrum with tubercle bacilli present in the washings from the antral cavity ....†766

Cohen, J. Solis.—Early laryngology in Philadelphia 80

Cohen, L.—Corrective rhinoplasty 565, ‡1023

Conservative treatment of suppuration of the accessory sinuses of the nose.—Gleason, E. B. 963

Contribution to the study of the anatomy of the tympanic cavity. —Butler, R. 851

Cords: Instrument for separating, the vocal, and for opening the mouth of the esophagus—Lynch,

Corrective rhinoplasty. — Cohen,

R. C. 48

L. ....565, ‡1023

Crane, C. G.—Asepsis in office practice 606

Cryptogenic infection; Some gateways of, The alveolar processes. Haskin, W. H. ....169, ‡609

D

Dabney, V.—Vaccine therapy in ear disease. Further contribution to the study of the subject 866

Daland, J.—The naso-pharynx as a cause of disease in other parts of the body *156, *233

Danziger, E. — Retro-esophageal abscess due to infection from a foreign body ....†694

Davis, J. L.—Fixed sources of all hemorrhage from tonsillectomy and its absolute control 161

Deaf child: a plea for co-operation.—Goldstein, M. A. 837

Death of an infant caused by fragment of peanut in left lung.—Carpenter, E. W. 190

Defective speech; Hypertrophied tonsils interfering with the action of the palate and causing,—Makuen, G. H. 22

Deformities; The submucous operation for correcting nasal, Symptoms indicating operation. Methods and difficulties encountered. —Stauffer, N. P. 720

Delavan, D. B.—Laryngology in New York .... †58

Dench, E. B.—The treatment of accidental wounds of the dura during operations upon the mastoid process 594

Dench, E. B.—Two cases of loss of caloric vestibular reaction with operative findings 792

Diagnosis and treatment of brain abscess.—Sharpe, W. ....200, ‡612

Diphtheria and psuedo-diphtheria infection in the mastoid wound; Report of eleven cases of,—Thomson, J. J. 219

Diphtheria carriers; The use of vaccines in the treatment of chronic,—Well, A. I. ....804, ‡1024

Doran, W. G.—Anesthesia in aural surgery 600

Downey, J. W.—An apparatus designed for the purpose of giving an approximately accurate quantitative hearing test 820

Dunning, H. S.—Some surgical conditions of the jaw ....520, †637

Dura during operations on the mastoid process; The treatment of accidental wounds of the,—Dench, E. B. 594

Dust contents; The air we breathe: a study of temperature, humidity and,—Hubbard, T. 750

Dwyer, J. G.—Jugular thrombosis (normal ear) complicating adenectomy: jugular resection: recovery ....†764

E

Ear and mastoid; Squamous epithelioma of the middle,—Goldbach, L. J. 128

Ear; Bacterins in the treatment of diseases of—Coates, G. M. 677, *769

Ear conditions; The violet ray and ozone of use in nose, throat and,—Baldwin, K. W. 42

Ear disease; Vaccine therapy in, Further contribution to the study of the subject.—Dabney, V. 866

Ear, nose and throat; Universal syringe for,—Schoonmaker, P..... 540

Ear, nose or throat reflex to disease of the teeth, jaws or parotid gland; Pathological conditions in the,—Ide, C. E........ 97

Ear; Operative disposal of chronic suppuration of the,—Ferreri, G. 81

Ear; Tuberculosis of the middle,—Briggs, H. H........‡1021

Effect upon the endolymph of the static labyrinth of local autogenous temperature variations.—Fowler, E. P. 210

Electrode for fulgurating the larynx—Yankauer, S. 993

Electro-magnets in the extraction of metallic bodies from the trachea and bronchi with report of cases; On the use of,—Iglauer, S. 33

Elimination of speech and voice defects.—Cadwallader, B. 986

Ellis, A. W. M.—Syphilitic affections of the eighth nerve......‡617

Emerson, L.—Cleft palate and tumor of the pharynx ....†554

Emerson, L.—Double hare-lip........†554

Emerson, L.—Fatal case resulting from morphin ....†555

Emerson, F. P.—New test for labyrinthine disease *895

Emerson, F. P.—Specific nerve deafness 666

Environmental surgery of otolaryngology.—Barnhill, J. F....... 948

Epiglottiditis; Acute phlegmonous,—Lederman, M. D. 25

Esophageal abscess due to infection from a foreign body; Retro-—Danziger, E. 694

Esophageal experience. Skiagraph and foreign body; A curious,—Arrowsmith, H. 531

Esophageal vein; Good results from use of normal horse serum in a case of hemorrhage from a ruptured,—Cobb, E. 154

Esophagoscope; Removal from the esophagus by means of an, of a plate of false teeth embedded for eighteen years.—Kyle, D. B. 185

Esophagoscopic radium screens.—Jackson, C. 152

Esophagoscopy; Broncho- — Carpenter, E. W. 534

Esophagus: anatomy anomalies, instruments and technic; Stenosis of the,—Mosher, H. P. ....‡999

Esophagus: causes, symptoms, pathology, diagnosis and treatment; Stenosis of the,—Jackson, C. ....‡1000

Esophagus; Instrument for separating the vocal cords and for opening the mouth of the,—Lynch, R. C. 48

Esophagus; Removal from the, by means of an esophagoscope of a plate of false teeth embedded for eighteen years.—Kyle, D. B. 185

Esophagus; The use of the bronchoscope in direct examination of the larynx, trachea, bronchi and,—Schoonmaker, P. 667

Ether; Tonsillectomy in the upright position under,—Roberts, W. H. 132

Ether vapor with oxygen; Superheated,—Hill, F. *706, *769

Ethmoiditis in a child: operation: recovery; Orbital abscess with optic neuritis due to acute,—Günzer, J. H. ....†765, 803

Etiology, diagnosis and treatment of the aural complications of the exanthemata.—Friedberg, S. A. ....783, ‡1011

Eves, C. C.—Teratoma of the pharynx 798

Exanthemata; Aural complications of the,—Borden, C. R. C. ....773, ‡1011

Exanthemata; The etiology, diagnosis and treatment of aural complications of the,—Friedberg, S. A. ....783, ‡1011

Explorer and two modifications of Allport's speculum; Brain,—Gifford, H. 47

Extracts and thoughts from a sinus classic.—Hurley, J. J........ 909

Eye and accessory sinuses of the nose; Physiologic and pathologic relations of the,—Wylie, C. B..... 496

Eye conditions the result of intranasal and nasal accessory sinus disease; Some serious,—Stucky, J. A. 7

Ferreri, G.—Operative disposal of chronic suppuration of the ear.... 81

F

Fixed sources of all hemorrhage from tonsillectomy and its absolute control.—Davis, J. L. 161
Forceps, Two modified,—Amberg, E. 543
Fowler, E. P.—Observation of nystagmus through the closed eyelids ......730, ‡1011
Fowler, E. P.—The effect upon the endolymph of the static labyrinth of local autogenous temperature variations 210
Freezing the inferior turbinate.—Gradle, H. S. 718
Freudenthal, W.—Brain infection from sinus disease 12
Freudenthal, W. — Laryngeal growth ......†550
Freudenthal, W.—Leontiasis ossea with marked involvement of the maxillary sinus ......†550
Fruedenthal, W.—The management of laryngeal tuberculosis in sanatoria and private practice ......†767, †833, †891
Friedberg, S. A.—The etiology, diagnosis and treatment of aural complications of the exanthemata ......783, ‡1011
Further report of cases of inflammatory affections of the labyrinth—Phillips, W. C. 969

G

Gag; An improved mouth,—Green, A. S. and L. D. 153
Gifford, H.—Brain explorer and two modifications of Allport's speculum 47
Gleason, E. B.—Case of purpura hemorrhagica 183
Gleason, E. B.—Conservative treatment of suppuration of the accessory sinuses of the nose...... 963
Gleason, E. B.—Demonstration of external operation on frontal sinus *640
Glottica acuta; Laryngitis submucosa sub-,—Richardson, C. W. 658
Glottiditis; Acute phlegmonous epi—Lederman, M. D. ......†227
Goddard, H. M.—Results of intranasal operation of fulminating case of sub-acute frontal sinusitis *639
Goldbach, L. J.—Squamous epithelioma of the middle ear and mastoid 128
Goldstein, M. A.—Case of purpura hemorrhagica 183
Goldstein, M. A.—The deaf child: a plea for co-operation...... 837
Good results from the use of normal horse serum in a case of hemorrhage from a ruptured esophageal vein.—Cobb, E. 154
Gradle, H. S.—Freezing the inferior turbinate 718
Grayson, C. P.—Chloroform anesthesia *704
Grayson, C. P.—The exploratory opening of the sphenoid sinus..‡1017
Green, A. S. and L. D.—An improved mouth gag 153
Güntzer, J. H.—Orbital abscess with optic neuritis due to acute ethmoiditis in a child: operation: recovery ......†765, 803
Guttman, J.—Hydrorrhea nasalis, cured ...... †66
Gwathmey, J. F.—Oil-ether colonic anesthesia *702

H

Hare-lip; Double,—Emerson, L......†554
Harris, T. J.—Chronic stenosis of the larynx *641
Harris, T. J.—Skull of aborigines. Specimen of temporal bone...... 45
Haskin, W. H.—Some gateways of cryptogenic infection. The alveolar processes ......169, ‡609
Haskin, W. H.—The medical and surgical aspects of oral sepsis of dental origin ......†629
Hearing test; An apparatus designated for the purpose of giving an approximately accurate quantitative,—Downey, J. W. 820
Heath, A. C.—A new modification of an old adenotome 155
Hemorrhage; An uncommon case of nasal,—Thompson, J. A. 899
Hemorrhage from a ruptured esophageal vein; Good results from use of normal horse serum in a case of,—Cobb, E. 154
Hemorrhage from tonsillectomy and its absolute control; Fixed sources of all,—Davis, J. L. 161
Hemorrhagica; Case of purpura,—Gleason, E. B. 183
Hemorrhagica; Case of purpura,—Goldstein, M. A. 1
Hemostat; A new tonsil,—Watson, A. W. 539
Hemostat tonsillectome; La Force,—La Force, B. D. 49
Herzig, A. J.—Urea and quinin hydrochlorid in nose and throat surgery ......†559
with oxygen *706 *769

Hill F.—Superheated ether vapor

Histo-pathology of the faucial tonsil.—Carmody, T. E. 587

Horse serum in a case of hemorrhage from a ruptured esophageal vein; Good results from use of normal,—Cobb, E. 154

Hubbard, T.—The air we breathe: a study of temperature, humidity and dust contents 750

Humidity and dust contents; The air we breathe: a study of temperature,—Hubbard, T. 750

Hurd, L. M.—Hyoscin and morphin as a preliminary to local anesthetics 951

Hurd, L. M.—Old silver tongue-depressor †559

Hurley, J. J.—Extracts and thoughts from a sinus classic 909

Hyoscin and morphin as a preliminary to local anesthetics,—Hurd, L. M. 951

Hypertrophied tonsils and adenoid vegetations in public school-children in New York City.—Baker, S. J. 143, †231, †547

Hypertrophied tonsils interfering with the action of the palate and causing defective speech.—Makuen, G. H. 22

I

Ide, C. E.—Pathological conditions in the ear, nose or throat reflex to disease of the teeth, jaws or parotid gland 97

Iglauer, S.—On the use of electromagnets in the extraction of metallic bodies from the trachea and bronchi with report of cases 33

Imperatori, C. J. and Smith, H.—Intra-venous injections of colloidal copper and mercury in the treatment of two inoperable cases of carcinoma of the larynx and tongue †624

Imperatori, C. J.—Report of a case of tuberculoma of the larynx †627

Improved method for removing the posterior tip of the inferior turbinate.—Lubman, M. 491

Improved mouth gag.—Green, A. S. and L. D. 153

Ingersoll, J. M.—Primary sarcoma of the trachea 664

In memoriam (Dr. John Adams) 962

In memoriam (Dr. Joseph S. Gibb)—Packard, F. R. 1026

In memoriam (Dr. Joseph W. Gleitsmann)—Delavan, D. B. 772

In memoriam (Dr. Emil Grüning)—Mayer, E. 644

In memoriam (Dr. Edwin Pynchon)—Goldstein, M. A. 836

Instrument for separating the vocal cords and for opening the mouth of the esophagus.—Lynch, R. C. 48

Intra-nasal and nasal accessory sinus disease; Some serious eye conditions the result of,—Stucky, J. A. 7

Intra-nasal surgery; A few interesting points in regard to bronchial asthma and report of a very severe case cured by,—Patton, W 982

Introduction of Dr. Delavan.—Carter, W. W. †58

Introduction of Dr. Wagner.—Carter, W. W. †55

J

Jackson, C.—Esophagoscopic radium screens 152

Jackson, C.—Stenosis of the esophagus: causes, symptoms, pathology, diagnosis and treatment ‡1000

Jackson, C.—Tracheotomy with lantern slide demonstration *71

Jaw; Some surgical conditions of the,—Dunning, H. S. 520, †637

Jaws or parotid gland; Pathological conditions in the ear, nose or throat reflex to disease of the teeth,—Ide, C. E. 97

Jugular thrombosis (normal ear) complicating cervical adenectomy: jugular resection: recovery.—Dwyer, J. G. †764

K

Kerrison, P. D.—Barany's theory of cerebellar localization: Diagnostic value of the pointing test in cerebellar abscess 192, ‡612

Kopetzky, S. J.—The operative treatment of meningitis 733, ‡1014

Kyle, D. B.—Removal from the esophagus by means of an esophagoscope of a plate of false teeth embedded for eighteen years 185

L

Labyrinth; A further report of cases of inflammatory affections of the,—Phillips, W. C. 969

Labyrinthine disease; New test for,—Emerson, F. P. *895

Labyrinth; The effect upon the endolymph of the static, of local autogenous temperature variations.—Fowler, E. P. 210

La Force, B. D.—La Force hemostat tonsillectome 49
Laryngeal growth.—Freudenthal, W. ....†550
Laryngeal paralysis; A case of bilateral recurrent,—Voislawsky, A. P. 894
Laryngeal tuberculosis in sanatoria and private practice; The management of, — Freudenthal, W. ....†767, †833, †891
Laryngeal tumor. Specimen; Another,—Arrowsmith, H. ......531, †227
Laryngectomy combined with gastrostomy.—Torek, F. ....†69, †226
Laryngitis submucosa subglottica acuta.—Richardson, C. W.......... 658
Laryngology; Environmental surgery of oto-,—Barnhill, J. F. 948
Laryngology in New York.—Delavan, D. B. .... †58
Laryngology in Philadelphia; Early,—Cohen, J. Solis *80
Laryngo - pharyngeal abscess. — White, F. ....†552
Laryngoscope; Illuminator for Killian's suspension,—Arrowsmith, H. ....†700
Laryngoscope; New, direct-view, self-retaining,—Unger, M.......... 995
Laryngoscopy in children; Suspension,—Levy, R..........936, ‡1005
Larynx; Case with adhesions between soft palate and larynx and stenosis of,—Lewis, F. O..........*641
Larynx; An electrode for fulgurating the,—Yankauer, S. 993
Larynx and tongue; Intra-venous injection of colloidal copper and mercury in the treatment of two inoperable cases of carcinoma of the,—Imperatori, C. J. and Smith, H. ....†624
Larynx; Chronic stenosis of the, —Harris, T. J. *641
Larynx; Fibroma of,—Lewis, F. O. *79
Larynx; New technic for the removal of intrinsic growth of the, —Lynch, R. C..........645, ‡1019
Larynx; Report of a case of tuberculoma of the,—Imperatori, C. J. ....†627
Larynx, trachea, bronchi and esophagus; The use of the bronchoscope in direct examination of the,—Schoonmaker, P.......... 667
Larynx, tracheotomy, thyrotomy, radium treatment; Carcinoma of the,—Smith, H. ....†620
Lederman, M. D.—Acute phlegmonous epiglottiditis ....†227
Levy, R.—Suspension laryngoscopy in children ....936, ‡1005
Lewis, F. O.—Case with adhesions between soft palate and larynx and stenosis of larynx..........*641
Lewis, F. O.—Chronic frontal sinusitis with external rupture *80
Lewis, F. O.—Fibroma of larynx.... *79
Lewis, F. O.—Presentation of two frontal sinus cases *639
Lewis, F. O.—Syphilitic lesion of the tonsil and soft palate.......... *79
Lewis, F. O.—The use of bacterins in the treatment of diseases of the nose and throat 673, *769
Lubman, M.—Improved method for removing the posterior tip of the inferior turbinate 494
Lung; Death of an infant caused by fragment of peanut in left,—Carpenter, E. W. 190
Lynah, H. L.—Specimen ....†553
Lynch, R. C.—Instrument for separating the vocal cords and for opening the mouth of the esophagus 48
Lynch, R. C.—New technic for the removal of intrinsic growths of the larynx ....645, ‡1019

M

MacFarlan, D.—Radiography of the nasal sinuses 48
MacKenty, J. E.—Pansinusitis......†634
Mackenzie, G. W.—Bullet wound of the frontal sinus and brain....*564
Mackenzie, G. W.—Presentation of cases *74
Mackenzie, G. W.—Technic of local anesthesia in submucous operation *234
Magnets in the extraction of metallic bodies from the trachea and bronchi with report of cases; On the use of electro-,—Iglauer, S. 33
Makuen, G. Hudson — Hypertrophied tonsils interfering with the action of the palate and causing defective speech 22
Makuen, G. Hudson—Surgery of the faucial tonsil as it relates to the functions of the tongue and soft palate in the production of voice 508, *642
Mastoiditis; Latent,—McKimmie, O. A. M. *236
Mastoid process; The treatment of accidental wounds of the dura during operations upon the,—Dench, E. B. 594

Mastoid; Squamous epithelioma of the middle ear and,—Goldbach, L. J. 128
Mastoid wound; Report of eleven cases of diphtheria and pseudodiphtheria infection in the,—Thomson, J. J. 219
MATLOCK, E.—Tubercular growth of septum *563
Maxilla; Dentigerous cyst of superior,—Cocks, G. H. .... †765
Maxillary antrum with tubercle bacilli present in the washings from the antral cavity; Tuberculosis of the,—Cocks, G. H. .... †766
Maxillary sinus; Preturbinal operation on the,—Skillern, R. H. 901, *960
McKIMMIE, O. A. M.—Latent mastoiditis *236
Meningitis; The operative treatment of,—Kopetzky, S. J. 733, ‡1014
Meningitis; Treatment of purulent cerebro-spinal,—Bryant, W. S. .... ‡1009
Menstruation cured by submucous resection of nasal septum; A case of supplemental vicarious,—Patton, W. T. 184
Morphin as a preliminary to local anesthetics; Hyoscin and,—Hurd, L. M. 951
Morphin; Fatal case resulting from,—Emerson, L. .... †555
MOSHER, H. P.—Stenosis of the esophagus: Anatomy, anomalies, instruments and technic .... ‡999
MOSHER, H. P.—The orbital approach to the cavernous sinus 709
Mouth gag; An improved,—Green, A. S. and L. D. 153
MÜLLER, G. P.—Intra-tracheal insufflation anesthesia *703

N

Nasal accessory sinus disease; Some serious eye conditions the result of intra-nasal and,—Stucky, J. A. 7
Nasal Choanae; A case of complete bilateral bony occlusion of both,—Pfingst, A. O. 179
Nasal Deformities; The submucous operation for correcting; Symptoms indicating operation. Methods and difficulties encountered.—Stauffer, N. P. 720
Nasal hemorrhage; An uncommon case of,—Thompson, J. A. 899
Nasal surgery; A few interesting points in regard to bronchial asthma and report of a very severe case cured by intra-,—Patton, W. 982
Nasalis, cured; Hydrorrhea, —Guttman, J. .... †66
Nasal septum; A case of supplemental vicarious menstruation cured by submucous resection of,—Patton, W. T. 184
Nasal sinuses; Radiography of the,—Macfarlan, D. 48
Naso-antral wall; Punch for the,—Yankauer, S. .... †701
Naso-pharyngeal fibroma; A case of recurrent,—Arrowsmith, H. .... †695
Naso-pharynx as a cause of disease in other parts of the body.—Daland, J. *156, *233
Nerve deafness; Specific,—Emerson, F. P. 666
New, direct-view, self-retaining laryngoscope.—Unger, M. 995
New modification of an old adenotome.—Heath, A. C. 155
New submucous septal operation —Tydings, O. 977
New technic for the removal of intrinsic growths of the larynx. —Lynch, R. C. .... 645, ‡1019
New tonsil hemostat.—Watson, A. W. 539
New tonsillectome.—Searcy, H. B. 826
Nose and throat surgery; Urea and quinin hydrochlorid in,—Herzig, A. J. .... †559
Nose and throat; The use of bacterins in the treatment of diseases of the,—Lewis, F. O. 673, *769
Nose and throat; Universal syringe for ear,—Schoonmaker, P. 540
Nose; Conservative treatment of suppuration of the accessory sinuses of the,—Gleason, E. B. 963
Nose; Operations for the correction of deformities of the, Practical demonstration of bridge-splint and bone transplantation operations on the cadaver.—Carter, W. W. *74
Nose or throat; Pathological conditions in the ear, reflex to disease of the teeth, jaws or parotid gland.—Ide, C. E. 97
Nose; Physiologic and pathologic relations of the eye and accessory sinuses of the,—Wylie, C. B. 496
Nose, throat and ear conditions; The violet ray and ozone of use in,—Baldwin, K. W. 42
Nystagmus through the closed eyelids; Observation of,—Fowler, E. P. .... 730, ‡1010

O

Observation of nystagmus through the closed eyelids.—Fowler, E. P. ....730, ‡1010
On the use of electro-magnets in the extraction of metallic bodies from the trachea and bronchi with report of cases.—Iglauer, S. 33
Operative disposal of chronic suppuration of the ear.—Ferreri, G. 81
Operative treatment of meningitis.—Kopetzky, S. J. ....733, ‡1014
Optic neuritis due to acute ethmoiditis in a child: operation: recovery; Orbital abscess with, Güntzer, J. H.————†765, 803
Oral sepsis of dental origin; The medical and surgical aspects of, Haskin, W. H. ....†629
Orbital abscess with optic neuritis due to acute ethmoiditis in a child: operation: recovery.—Güntzer, J. H. ....†765, 803
Orbital approach to the cavernous sinus.—Mosher, H. P. 709
Oto-laryngology; Environmental surgery of,—Ridpath, J. F. 948
Ozone of use in nose, throat and ear conditions; The violet ray and,—Baldwin, K. W. 42

P

Palate; Hypertrophied tonsils interfering with the action of the, and causing defective speech.—Makuen, G. H. 22
Palate in the production of voice; Surgery of the faucial tonsil as it relates to the functions of the tongue and soft,—Makuen, G. Hudson 508, *642
Palate; Presentation of a case of specific perforation of the soft,—Coates, G. M. *642
Parotid gland; Pathological conditions in the ear, nose or throat reflex to disease of the teeth, jaws or,—Ide, C. E. 97
Parotid gland; Tuberculosis of,—Carmody, T. E. 873
Pathological conditions in the ear, nose or throat reflex to disease of the teeth, jaws or parotid gland.—Ide, C. E. 97
Pathology of the faucial tonsil; Histo- — Carmody, T. E. 587
Patton, W.—A few interesting points in regard to bronchial asthma and report of a very severe case cured by intra-nasal surgery 982
Patton, W. T.—A case of supplemental vicarious menstruation cured by submucous resection of nasal septum. 184
Pfingst, A. O.—A case of complete bilateral bony occlusion of both nasal choanae. 179
Pharyngeal abscess with rupture, asphyxiation and death following an acute attack of tonsillitis; Retro-,—Charlton, C. C. ... 985
Pharynx; Cleft palate and tumor of the,—Emerson, L. ....†554
Pharynx, Teratoma of the,—Eves, C. C. 798
Phillips, W. C.—A further report of cases of inflammatory affections of the labyrinth 969
Phlegmonous epiglottiditis; Acute,—Lederman, M. D. 25
Physiologic and patholologic relations of the eye and accessory sinuses of the nose.—Wylie, C. B. 496
Pointing test in cerebellar abscess; Barany's theory of cerebellar localization: Diagnostic value of the,—Kerrison, P. D. 192, ‡612
Polyp; Report of a case of a large choanal,—Ridpath, R. F. *78
Preturbinal operation on the maxillary sinus.—Skillern, R. H. 901, *960
Primary sarcoma of the trachea.—Ingersoll, J. M. 664
Proper fields of medicine and surgery in disease of the upper air passages.—Thompson, J. ..741, ‡1019
Purpura hemorrhagica; Case of,—Gleason, E. B. 183
Purpura hemorrhagica; Case of,—Goldstein, M. A. 1

R

Radiography of the nasal sinuses.—MacFarlan, D. 48
Radium screens; Esophagoscopic,—Jackson, C. 152
Ray and ozone of use in nose, throat and ear conditions; The violet,—Baldwin, K. W. 42
Relations of the tonsil to thyroid disease.—Shurly, B. R. 929
Removal from the esophagus by means of an esophagoscope of a plate of false teeth embedded for eighteen years.—Kyle, D. B. 185
Report of eleven cases of diphtheria and pseudo-diphtheria infection in the mastoid wound.—Thomson, J. J. 219

Report of the secretary of the New York Academy of Medicine, Section on Laryngology and Rhinology.—Van Wagenen, C. D. 52

Retro-pharyngeal abscess with rupture, asphyxiation and death following an acute attack of tonsillitis.—Charlton, C. C........ 985

Rhinitis: treatment with scarlet red; Atrophic,—Wood, W. C. 503, ‡609

Rhinoplasty; Corrective,—Cohen, L. ....565, ‡1023

Richardson, C. W.—Laryngitis submucosa subglottica acuta...... 658

Ridpath, R. F.—Ether anesthesia.*706

Ridpath, R. F.—Report of a case of a large choanal polyp........ *78

Ridpath, R. F.—Routine use of the bronchoscope in the out-patient department 942, *960

Roberts, W. H.—Tonsillectomy in the upright position under ether. 132

Routine use of the bronchoscope in the out-patient department.—Ridpath, R. F........942, *960

S

Scarlet red; Atrophic rhinitis: Treatment with,—Wood, W. C. 503, ‡609

Schoonmaker, P.—The use of the bronchoscope in direct examination of the larynx, trachea, bronchi and esophagus........ 667

Schoonmaker, P. — Universal syringe for ear, nose and throat. 540

Searcy, H. B.—New tonsillectome. 826

Septal operations; New submucous,—Tydings, O. 977

Septum; A case of supplemental vicarious menstruation cured by submucous resection of nasal,—Patton, W. T........ 184

Septum; Tubercular growth of,—Matlock, E. *562

Serum in a case of hemorrhage from a ruptured esophageal vein; Good results from use of normal horse,—Cobb, E........ 154

Sharpe, W.—The diagnosis and treatment of brain abscess. 200, ‡612

Sheppard, J. E.—The clinical significance of bacteremia........‡1006

Sherman, G. H.—Vaccines in nose, throat and sinus infections........*898

Shurly, B. R.—The relation of the tonsil to thyroid disease...... 929

Shurly, B. R.—Two very interesting cases of foreign bodies in the bronchi removed by the bronchoscope. *894

Sinus and brain; Bullet wound of the frontal,—Mackenzie, G. W. *564

Sinus cases; Presentation of two frontal,—Lewis F. O........*639

Sinus classic; Extracts and thoughts from a,—Hurley, J. J. 909

Sinus; Demonstration of external operation on frontal,—Gleason, E. B. *640

Sinus disease; Brain infection from,—Freudenthal, W. 12

Sinus disease; Some serious eye conditions the result of intranasal and nasal accessory,—Stucky, J. A........ 7

Sinuses of the nose; Conservative treatment of suppuration of the accessory,—Gleason, E. B........ 963

Sinuses; Radiography of the nasal, Macfarlan, D. 48

Sinusitis: meningeal irritation: acute multiple arthritis; Case of streptococcal pan-,—Abraham, J. H. ....†622

Sinusitis; Pan-,—MacKenty, J. E. ....†634

Sinusitis; Results of intra-nasal operation of fulminating case of sub-acute frontal,—Goddard, H. M. *639

Sinusitis suppuration complicated by epidural and orbital abscesses; Chronic frontal, —Cocks, G. H........†635

Sinusitis with external rupture; Chronic frontal,—Lewis, F. O... *80

Sinus; Leontiasis ossea with marked involvement of the maxillary,—Freudenthal, W. ....†550

Sinus suppuration; Vaccine treatment in accessory,—Skillern, R. H. 676, *769

Sinus; The orbital approach to the cavernous,—Mosher, H. P.... 709

Sinus with demonstration of specimens; The normal and abnormal frontal,—Strouse, F. M....... 563

Skillern, R. H.—The preturbinal operation on the maxillary sinus. 901, *960

Skillern, R. H.—Vaccine treatment in accessory sinus suppuration. 676, *769

Skull of aborigines. Specimen of temporal bone.—Harris, T. J..... 45

Smith, H. and Imperatori, C. J. —Intra-venous injections of colloidal copper and mercury in the treatment of two inoperable cases of carcinoma of the larynx and tongue. ....†624

Smith, H. — Carcinoma of the larynx, tracheotomy, thyrotomy, radium treatment. ....†620
Smith, H.—Lympho-sarcoma of the tonsil. ....†621
Smith, H.—Plastic operation for the restoration of the severed vocal cords on one side following traumatic self-inflicted injury of the throat....................†552
Some gateways of cryptogenic infection. The alveolar processes. —Haskin, W. H....................169, ‡609
Some serious eye conditions the result of intra-nasal and nasal accessory sinus disease—Stucky, J. A. 7
Some surgical conditions of the jaw.—Dunning, H. S....................520, †637
Specimen.—Lynah, H. L....................†553
Speculum; Brain explorer and two modifications of Allport's,—Gifford, H. 47
Speech and voice defects; Elimination of,—Cadwallader, B.......... 986
Speech; Hypertrophied tonsils interfering with the action of the palate and causing defective,—Makuen, G. H.................... 22
Sphenoid sinus; The exploratory opening of the,—Grayson, G. P. ‡1017
Squamous epithelioma of the middle ear and mastoid.—Goldbach, L. J. 128
Stauffer, N. P.—The submucous operation for correcting nasal deformities. Symptoms indicating operation. Methods and difficulties encountered. 720
Strouse, F. M.—The normal and abnormal frontal sinus with demonstration of specimens..........*563
Stucky, J. A.—Some serious eye conditions the result of intranasal and nasal accessory sinus disease. 7
Submucous operation for correcting nasal deformities. Symptoms indicating operation. Methods and difficulties encountered. —Stauffer, N. P.................... 720
Submucous operation; Technic of local anesthesia in,—Mackenzie.*234
Submucous resection of nasal septum; A case of supplemental vicarious menstruation cured by,—Patton, W. T.................... 184
Surgery of the faucial tonsil as it relates to the functions of the tongue and soft palate in the production of voice.—Makuen, G. Hudson 508
Suspension laryngoscopy in children.—Levy, R. ....936, ‡1005
Syphilitic affections of the eighth nerve.—Ellis, A. W. M....................‡617

T

Teeth embedded for eighteen years; Removal from the esophagus by means of an esophagoscope of a plate of false,—Kyle, D. B. 185
Teeth, jaws or parotid gland: Pathological conditions in the ear, nose or throat reflex to disease of the,—Ide, C. E.................... 97
Temperature, humidity and dust contents; The air we breathe: a study of,—Hubbard, T.................... 750
Temperature variations; The effect upon the endolymph of the static labyrinth of local autogenous,—Fowler, E. P.................... 210
Temporal bone; Skull of aborigines. Specimen of,—Harris, T. J. 45
Teratoma of the pharynx.—Eves, C. C. 798
Thompson, J. A.—An uncommon case of nasal hemorrhage.................... 899
Thompson, J. A.—The proper fields of medicine and surgery in diseases of the upper air passages 741, ‡1019
Thomson, J. J.—Report of eleven cases of diphtheria and pseudodiphtheria infection in the mastoid wound. 219
Throat and ear conditions; The violet ray and ozone of use in nose,—Baldwin, K. W.................... 42
Throat; Pathological conditions in the ear, nose or, reflex to disease of the teeth, jaws or parotid gland.—Ide, C. E.................... 97
Throat; The use of bacterins in the treatment of diseases of the nose and,—Lewis, F. O..........673, *769
Throat; Universal syringe for ear, nose and,—Schoonmaker, P. 540
Thyroid disease; The relation of the tonsil to,—Shurly, B. R.......... 929
Thyroid gland weighing 602 grammes from girl 13 years of age; Successful removal of, Presentation of patient and specimen.—Carter, W. W....................†697
Tongue and soft palate in the production of voice; Surgery of the faucial tonsil as it relates to the functions of the,—Makuen, G. Hudson 508, *642

Tongue-depressor; Old silver,—Hurd, L. M.......†558
Tonsil and soft palate; Syphilitic lesion of the,—Lewis, F. O....... *79
Tonsil and their treatment; Affections of the lingual,—Biedert, C. C. 885
Tonsil as it relates to the function of the tongue and soft palate in the production of voice; Surgery of the faucial, —Makuen, G. Hudson.......508, *642
Tonsil hemostat; A new,—Watson, A. W. 539
Tonsil; Histo-pathology of the faucial,—Carmody, T. E....... 587
Tonsillectome; La Force hemostat,—La Force, B. D....... 49
Tonsillectome; New,—Searcy, H. B. 826
Tonsillectomy; Fixed sources of all hemorrhage from, and its absolute control.—Davis, J. L....... 161
Tonsillectomy in the upright position under ether.—Roberts, W. H. 132
Tonsillitis; Retro-pharyngeal abscess with rupture, asphyxiation and death following an acute attack of,—Charlton, C. C....... 985
Tonsillotome; Modification of the Sluder,—Arrowsmith, H. ....†700
Tonsil; Lympho-sarcoma of the,—Smith, H. ....†621
Tonsils and adenoid vegetations in public school children in New York City; Hypertrophied,—Baker, S. J.......143, †231, †547
Tonsils interfering with the action of the palate and causing defective speech; Hypertrophied,—Makuen, G. H....... 2
Tonsil; Surgery of the faucial, as it relates to the functions of the tongue and soft palate in the production of voice.—Makuen, G. Hudson 508
Tonsil to thyroid disease; The relation of the,—Shurly, B. R....... 929
Torek, F. — Laryngectomy combined with gastrostomy.......†69, †226
Trachea and bronchi; On the use of electro-magnets in the extraction of metallic bodies from the, with report of cases.—Iglauer, S. 33
Trachea, bronchi and esophagus; The use of the bronchoscope in direct examination of the larynx,—Schoonmaker, P....... 667
Trachea; Primary sarcoma of the, —Ingersoll, J. M....... 664
Tracheotomy with lantern slide demonstrations.—Jackson C. *71
Treatment of accidental wounds of the dura during operations upon the mastoid process. —Dench, E. B....... 594
Tuberculosis of the parotid gland. —Carmody, T. E....... 873
Turbinal operation on the maxillary sinus, Pre-,—Skillern, R. H. 901, *960
Turbinate; Freezing the inferior, —Gradle, H. S....... 718
Turbinate; Improved method for removing the posterior tip of the inferior,—Lubman, M....... 494
Two cases of loss of caloric vestibular reaction with operative findings.—Dench, E. B....... 792
Two modified forceps.—Amberg, E. 543
Tydings, O.—New submucous septal operation 977
Tympanic cavity; A contribution to the study of the,—Butler, R. 851

U

Uncommon case of nasal hemorrhage.—Thompson, J. A....... 889
Unger, M.—New, direct-view, self-retaining laryngoscope 995
Universal syringe for ear, nose and throat.—Schoonmaker, P.... 540
Upper air passages; The proper fields of medicine and surgery in diseases of the,—Thompson, J. A. ....741, ‡1019
Use of bacterins in the treatment of diseases of the nose and throat.—Lewis, F. O.......673, *769
Use of the bronchoscope in direct examination of the larynx, trachea, bronchi and esophagus. —Schoonmaker, P....... 667
Use of vaccines in the treatment of chronic diphtheria carriers. —Weil, A. I.......804, ‡1024

V

Vaccines in nose, throat and sinus infections.—Sherman, G. H. *898
Vaccines in the treatment of chronic diphtheria carriers; The use of,—Weil, A. I.....804, ‡1024
Vaccine therapy in ear disease. Further contribution to the study of the subject....... 866
Vaccine treatment in accessory sinus suppuration.—Skillern, R. H. 676, *769

Van Wagenen, C. D.—Report of the secretary of the New York Academy of Medicine, Section on Laryngology and Rhinology.. 52
Vestibular reaction with operative findings; Two cases of loss of caloric,—Dench, E. B. 792
Violet ray and ozone of use in nose, throat and ear conditions. Baldwin, K. W. 42
Vocal cords; Instrument for separating the, and for opening the mouth of the esophagus.—Lynch, R. C. 48
Vocal cords on one side following self-inflicted injury of the throat; Plastic operation for the restoration of the severed,—Smith, H. †552
Voice defects; Elimination of speech and,—Cadwallader, B. 986
Voice; Surgery of the faucial tonsil as it relates to the functions of the tongue and soft palate in the production of,—Makuen, G. Hudson. 508, *642
Voislawsky, A. P.—A case of bilateral recurrent laryngeal paralysis. *894

W

Watson, A. W.—A new tonsil hemostat. 539
Weil, A. I.—The use of vaccines in the treatment of chronic diphtheria carriers 804, ‡1024
White, F. — Laryngo-pharyngeal abscess. †552
Wood, W. C.—Atrophic rhinitis: treatment with scarlet red..503, ‡609
Wylie, C. B.—Physiologic and pathologic relations of the eye and accessory sinuses of the nose. 496

Y

Yankauer, S.—An electrode for fulgurating the larynx 993
Yankauer, S. — Broncholith removed from the trachea and right bronchus. †698
Yankauer, S.—Punch for the naso-antral wall. †701
Yankauer, S.—Report of three cases of foreign bodies removed from the bronchus †556
Yankauer, S.—Watermelon seed removed from left bronchus of a child. †892

BOOK REVIEWS.

Adams, J.—Asthma and its radical treatment 1025
Allgemeine Akustik und Mechanik des menschlichen Stimmorgans—Musehold, A. 240
Asthma and its radical treatment.—Adams, J. 1025
Backus, H.—The career of Dr. Weaver 1025
Blumenfeld, F., Katz, L. and Preysing, H.—Handbuch der speciellen Chirurgie des Ohres und der oberen Luftwege 831
Career of Dr. Weaver.—Backus, H. 1025
Catarrhal and suppurative diseases of the accessory sinuses of the nose—Skillern, R. H. 240
Davis, W. B.—Development and anatomy of the nasal accessory sinuses in man 832
Development and anatomy of the nasal accessory sinuses in man.—Davis, W. B. 832
Handbuch der speciellen Chirurgie des Ohres und der oberen Luftwege.—Katz, L., Preysing, H. and Blumenfeld, F. 831
Heine, B.—Operationen am Ohr. Die Operation bei Mittelohreiterungen und ihren intra-kraniellen Komplikationen 832
History of laryngology and rhinology—Wright, J. 962
Katz, L., Preysing, H. and Blumenfeld, F.—Handbuch der speciellen Chirurgie des Ohres und der oberen Luftwege 831
Musehold, A.—Allgemeine Akustik und Mechanik des menschlichen Stimmorgans 240
Operationen am Ohr. Die Operation bei Mittelohreiterungen und ihren intra-kraniellen Komplikationen—Heine, B. 832
Preysing, H., Blumenfeld, F. and Katz, L.—Handbuch der speciellen Chirurgie des Ohres und der oberen Luftwege 831
Skillern, R. H.—The catarrhal and suppurative diseases of the accessory sinues of the nose 240
Wright, J.—History of laryngology and rhinology 962

EDITORIAL DEPARTMENT.

Defects of speech.—Makuen, G. Hudson- 827
The deaf—their education, improvement of conditions, responsibilities and participation of the profession.—Wright, J. D.— 544, 689, 761, 955

ILLUSTRATIONS.

Adams, J. L. 962
Adenotome; A new modification of an old,—Heath, A. C....................155
Alveolar processes: Some gateways of cryptogenic infection—Haskin, W. H. 170-178
Aural suppurations; Microscopic sections of chronic,—Ferreri, G....................88
Brain explorer—Gifford, H....................48
Cavernous sinus; Orbital approach to the,—Mosher, H. P....................711-715
Chart illustrating how deviated septum will cause headache by pressure on middle turbinal—Stauffer, N. P....................724
Chin position; Diagram of extended,—Macfarlan, D....................491
Choanae; Complete operation (Katz) in a case of bony occlusion of the right,—Pfingst, A. O. 181
Choanae; Schematic illustration of case of complete bilateral occlusion of both,—Pfingst, A. O. 180
Container for sterile cotton—Crane, C. G....................606
Ear and mastoid; Microscopic sections of squamous epithelioma of the middle,—Goldbach, L. J. 129-131
Electrode for fulgurating the larynx.—Yankauer, S. 993
Ether vapor machine—Doran, W. G. 602-603
Ethmoid bone before resorption—Hurley, J. J....................911
Ethmoid capsule undergoing resorption—Hurley, J. J....................913-915
Forceps; Two modified,—Amberg, E. 543
Giant Magnet of Dr. John Ranly—Iglauer....................37
Gleitsmann, J. W. 772
Grüning, Emil 644
Hemostat tonsillectome—La Force 50
Illuminator for Killian's suspension laryngoscope—Arrowsmith, H....................700
Jaw; Surgical conditions of the,—Dunning, H. S....................521-530
Lamellae and inter-turbinal bony septa which spring up to make the ethmoid cell.—Hurley, J. J. 917
Laryngoscope; New direct-view self-retaining,—Unger, M.....996, 998
Larynx; Epithelioma of the,—Arrowsmith, H. 531-532
Larynx; New technic for the removal of intrinsic growths of the,—Lynch, R. C. 646-654
Lung containing a metal screw: Radiogram showing an abscess in left,—Iglauer....................36
Mastoid retractor (Allport-Jansen) with off-set branches and somewhat slightly sharpened points—Gifford, H....................47
Mouth-gag; An improved,—Green, A. S. and L. D....................153
Nasal sinuses; Radiography of the,—Macfarlan, D....................487-492
Nose, accessory spaces and alveolar process of jaw before and after treatment—Goldstein, M. A. 2-4
Nystagmograms of both eyes taken simultaneously—Fowler, E. P....................731
Nystagmus during rotation; Tracing of,—Fowler, E. P....................731
Parotid gland; Tuberculosis of the,—Carmody, T. E....................876-878
Preturbinal operation on the maxillary sinus—Skillern, R. H....................902-907

Purpura hemorrhagica—Goldstein, M. A. 5
Pynchon, E. 836
Reflex, pathological conditions in the ear, nose or throat; Radiographs showing conditions in the teeth, jaws or parotid gland causing,—Ide, C. E. 98-122
Retractor for tying the jugular—Gifford, H....................47
Rhinoplasty; Corrective,—Cohen, L. 566-583
Screen; Esophagoscopic radium,—Jackson, C....................152
Screw, actual size, removed by magnetic attraction—Iglauer....................39
Skull of aborigines. Specimen of temporal bone—Harris, T. J....................45-46
Steel rod magnetized with which screw was attracted and extracted—Iglauer....................39
Submucous resections before and after operation—Stauffer, N. P....................721-722
Submucous septal operation; New,—Tydings, O. 978, 980
Syringe for ear, nose and throat; Universal,—Schoonmaker, P....................541
Temporal sphenoidal lobe; Abscess of the left,—Sharpe, W....................206
Teratoma of the pharynx—Eves, C. C....................798
Tone-meter, closed and open—Downey, J. W....................822-824
Tonsil; Histo-pathology of the faucial,—Carmody, T. E....................588-591
Tonsillectome; New,—Searcy, H. B. 826
Tonsillectomy; Control of hemorrhage in,—Davis, J. L....................168
Tonsillectomy in the upright position under ether—Roberts, W. H....................133-141
Tooth-plate embedded in the esophagus for eighteen years; Radiograph showing,—Kyle, D. B. 186
Turbinate; Improved method for removing the posterior tip of the inferior,—Lubman, M. 494-495
Tympanic cavity; Study of the anatomy of the,—Butler, R....................852-865
Vocal cords; Instrument for separating the, and opening the mouth of the esophagus—Lynch, R. C. 48
Wink during latter part of nystagmus; Tracing of a,—Fowler, E. P....................731

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to The Laryngoscope.)

CASE OF PURPURA HEMORRHAGICA.*

Dr. Max A. Goldstein, St. Louis.

Dyscrasias of the blood showing intense local manifestations in the mucous membrane of the mouth and buccal cavities are so infrequent and are so meagerly described in text-books and monograph-literature that I take this occasion to report minutely the following case of purpura hemorrhagica with local manifestations especially developed in the mouth.

M. M. F., aged 36 years, a Russian tailor, was admitted to the Medical Division of the Jewish Hospital of Saint Louis, December 1, 1911, and was referred to my department, December 3.

Present condition: The patient was admitted, bleeding from the left nostril, from the mouth, and from the gums of the left superior maxilla. This bleeding began two days previous to the admission to the hospital, and the patient sought relief from a physician who packed the nose tightly with gauze. The bleeding in the nose continued through the dressing and also from the gums of the left upper jaw. Patient consulted a dentist who incised the mucous membrane of the gum and lip near the site of bleeding.

The bleeding seemed uncontrollable, and the patient was admitted to the "in-patient" department of the Jewish Hospital and put to bed.

There was no marked pain except on manipulation about the nose, antrum, lips and gums; occasional headaches; no pains in the chest or abdomen; slight pain in the left thigh; appetite not impaired, but had not eaten for two days on account of bleeding in the mouth: sleep disturbed because of hemorrhage; bowel, constipated, passage black and tarry; urine, very dark red.

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*Candidate's thesis presented to the Thirty-fifth Annual Meeting of the American Laryngological Association, Washington, D. C., May, 1913.

PREVIOUS HISTORY: No recollection of childhood diseases; no serious illness up to the present time. Had tooth extracted last May, followed by marked bleeding. Since that time he noticed that he bled unusually freely from the slightest cut. No history of bleeding in any member of the family. Denies venereal diseases.

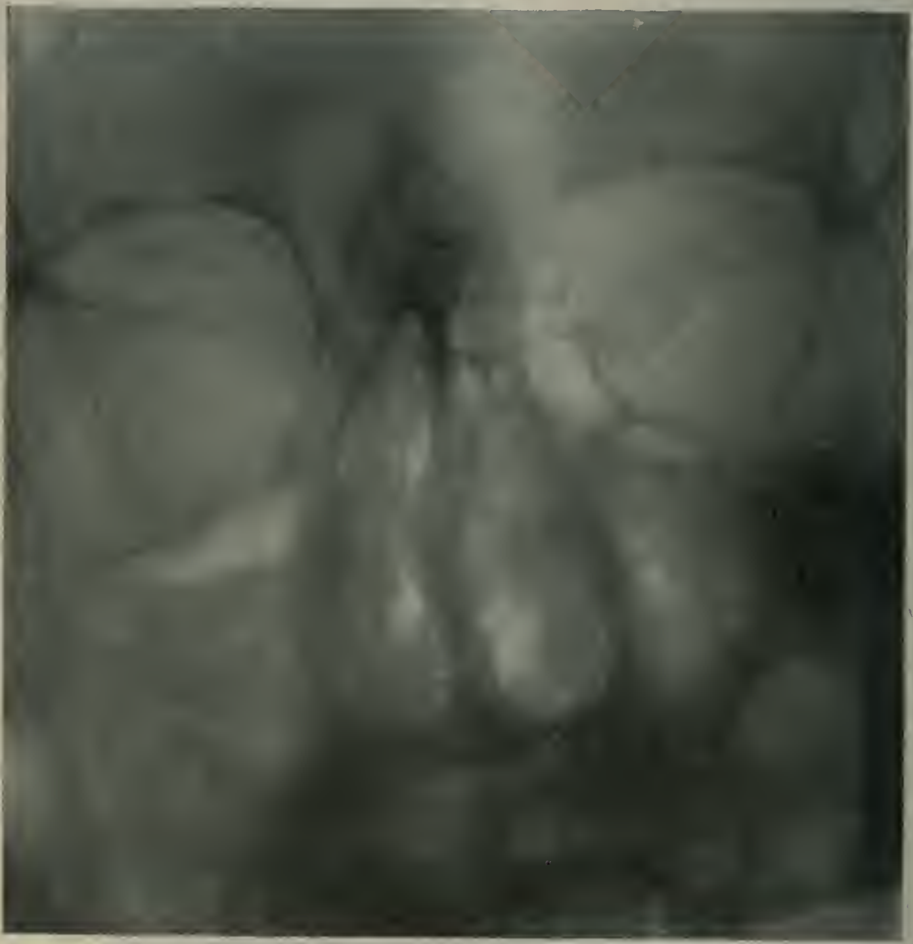

Plate 1: Nose, accessory spaces and alveolar process of jaw before treatment.

EXAMINATION: Middle aged man; small stature; expression, dull and anxious; color very sallow. Reddish and reddish-brown spots (pin-point to size of split pea) in skin on face and generally scattered over body. These spots appeared suddenly, enlarged, and turned brown after a few days. *Eyes*: Color of sclera of eyes, yellowish, somewhat injected; pupils equal and react to light and accommodation. *Nose*: Left nostril markedly dilated and mucosa engorged and inflamed: Constant oozing through packing; area of bleeding not localized. No nasal symptoms prior to present attack. *Mouth*: Lips dry, swollen, dark-red spots on inner margin; similar spots on internal and external margin of gums, on left side of the upper and lower jaws, also on the surface of soft and hard palate, sublingual plica, and on uvula and fauces. Upper side, left jaw, shows very bad tooth. Bleeding under gum of first and second molars. Buccal cavity on left side very much swollen, pigmented and bloody. *Pharynx*: Difficult of inspection, as blood from posterior naris constantly trickled over surface. *Ears*: Negative. *Neck and chest*: Negative except for purpuric spots. Heart-sounds good, no murmurs. *Abdomen*: No rigidity nor tenderness. *Liver* extended from seventh rib to slightly below the costal margin. *Spleen*: Not palpable. *Extremities*: No glandular enlargement, slight pain in left thigh; patella and plantar reflexes positive; Rombergism negative. Arteries soft, tension good.

CLINICAL RECORD. *December 3, 1911*: Numerous purpuric spots appearing on flexor surface of arms and legs, and on face. Nose and gums packed four to five times in twenty-four hours with gauze strips soaked in adrenalin chlorid. Tincture opii internally M X. Two tubes of anti-diphtheric serum injected subcutaneously. Calcium lactate (gr. 10) every three hours; gelatin by mouth; liquid nourishment only; ice caps and cold compresses constantly applied to head and face. Temperature 98°-98.6° (axillary).

December 4: Nose and gums packed with 25 per cent ferrous subsulphate. Parts cleaned with hydrogen peroxid.

December 5: Nose packed with bismuth subnitrate gauze and dusted with aristol. Patient felt slightly better and less alarmed.

December 6: All packs removed and parts dusted with aristol. Still slight oozing. Left eyelids and infra-orbital region infiltrated reddish-yellow; similar blotches on exterior surface of left arm. Temperature 98°-99.8° (axillary). Calcium lactate, internally administered, continued in 10 grain does every three hours. Olive oil t. i. d.

December 8: Urine of normal color the first time since admission of patient to hospital. Temperature 98.6°-100.2°. Sero-sanguinous discharge from left nostril. Left side of nose, superior maxillary process, eyelids, and bridge of nose much swollen and bluish in color. Very little evidence of bleeding. Petechial spots still present on palate and gums.

December 10: Swelling over superior maxilla decreased in upper but increased in lower areas. On gingival mucous membrane, just above first molar tooth on left side, fluctuating tumor, the size of a large hazel-nut; pain on slight pressure. Tumored incised, slight amount of purulent matter expressed. Tumor area painted with tincture of iodin. Temperature 99.2°.

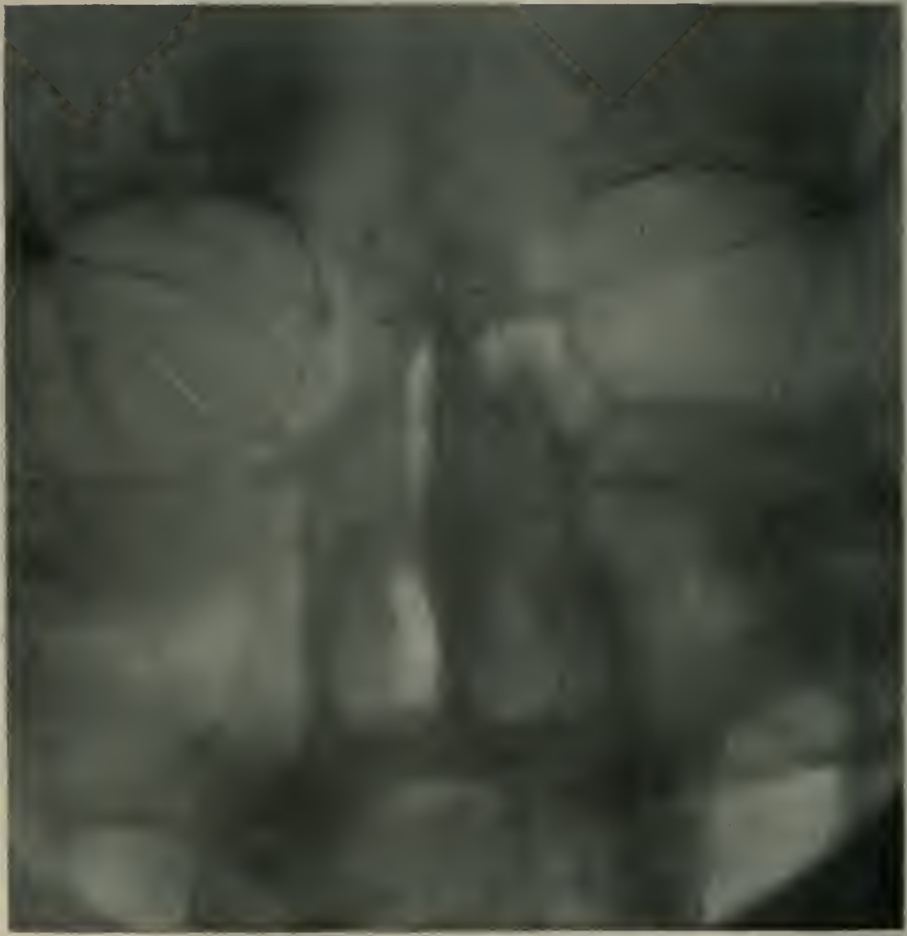

Plate 2: Nose, accessory spaces and alveolar process of jaw after treatment.

December 13: General condition of patient much better; swelling almost disappeared from face; only traces of spots on gums and palate remain. Purpuric spots in skin of body have disappeared.

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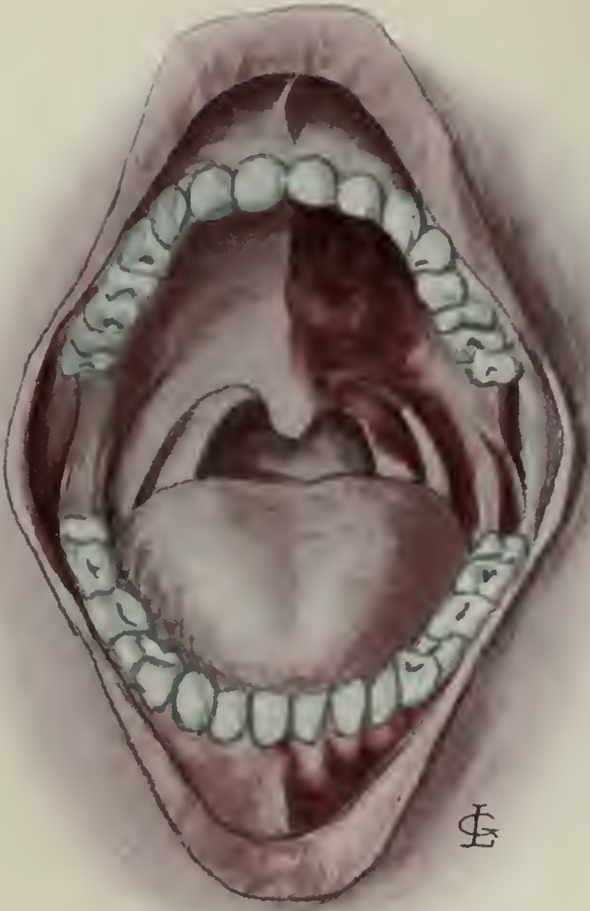

PURPURA HEMORRHAGICA.

Case of Dr Max Goldstein

December 16: Temperature normal for three days. Patient much improved: discharged from "in-patient" department.

BLOOD-EXAMINATION. *December 3*: Hemoglobin 75 per cent; leucocytes 15,000.

December 4: Red count 5,750,000; hemoglobin 80 per cent.

December 9: Red count 4,500,000, white count 14,600; hemoglobin 85 per cent.

URINE: Examined daily; showed neither albumen nor sugar, nor increase of indican.

FECAL EXAMINATION: Stools very dark, hard, nodular, tar-like. Guiac test very positive during bleeding; cleared rather abruptly.

RADIOGRAMS: First x-ray was taken December 7, 1911; the second x-ray was taken December 15, 1911.

This case, seen in consultation with Drs. Tuholske, Friedman, Jonas, Lippmann, Meyers and Deutsch, was diagnosed as a rather unusual form of purpura hemorrhagica of unknown etiology. The clinical evidences were sufficiently marked to warrant this diagnosis.

The factors of unusual interest from a laryngological point of view were the localization of the unusual and sharply marked purpuric blotches in the mouth and buccal cavity, the spontaneous bleeding from the nose and gums as possible etiological factors, the apparent ineffectiveness of internal therapy until the injection of serum had been made, and a further possible etiological factor in the left nasal fossa and maxillary antrum as shown by the radiograms.

The colored plate, drawn at the bed-side, gives a fairly accurate idea of the areas involved in the localized purpuric infiltration.

It is a significant feature of this case that all of the areas of pigmentation, whether in the mucosa or skin of body and extremities appears on the left side.

In the mouth and buccal cavity this intense pigmentation is outlined by a sharp straight line to the vertical edge of the median raphe in the hard and soft palate and the frenum in the gums of the lower jaw. The deepest coloration of bluish-red appears over the hard palate corresponding to the area over the floor of the nose; this might, perhaps, be associated with the original pathology in the alar wall of the nose and nasal wall and floor of antrum.

Repeated inspection of the nose of the patient after convalescence showed the septal mucosa on the left side perfectly normal, but the left alar nasal surfaces about the middle turbinal body and inferior meatus showed similar irregular areas of erosion.

The left maxillary antrum was washed out several months after the discharge of the patient, and the wash came away perfectly clear. These observations are also substantiated by the second radiogram as compared to the first, in which obscurity and possible fluid-contents (perhaps blood) were evident.

The cause of the spontaneous bleeding from the nose was not ascertained. When the patient was at first seen at the hospital, there was an ulceration or erosion of the gums about the first molar tooth which was painful to the slightest manipulation and bled freely.

Of all the therapeutic measures carried out in the conduction of this case we have reason to believe that the only effective agent utilized was the injection of two tubes (10 ccm. each) of anti-diphtheric serum. Thirty-six hours after injection of the serum all packings were removed from the nose and very little oozing followed.

A critical examination and comparison of the two radiograms, the first taken during the hemorrhagic activities in the nasal and oral cavities, and the second after the patient was discharged from the hospital showed decided differences in appearance. In the first radiogram there is a distinct area of shadow in the left nasal fossa and left antrum, and there is also some evidence of abnormality indicated in the shadow of floor of left nose, antrum and appearance of bone of left superior maxilla; in the second radiogram both nares appear more nearly of the same shading as do the floor and nasal wall of antrum and area over the left maxilla.

The case is unique in kind, as I have searched the literature of purpura hemorrhagica carefully and have failed to find any mention of localization in the area of the nasal and oral cavities.

I am indebted to Dr. Joseph O'Reilly for the careful bed-side notes furnished in this case.

3858 Westminster Place.

SOME SERIOUS EYE CONDITIONS THE RESULT OF INTRA-NASAL AND NASAL ACCESSORY SINUS DISEASE.*

Dr. J. A. Stucky, Lexington, Ky.

In an address delivered before this academy in September, 1907, on a similar topic, I said: "While the subject of the relation of the pathological condition of the nose and accessory sinuses to the visual apparatus, was by no means unfamiliar," the last word pertaining to symptomatology and diagnosis had not been said, and in the study of this region there is still "much timber, tall and uncut" —much anatomical and physiological work to do, and a still greater field for study in the pathological realm. Laurels and gratitude await the patient and persevering investigations of our members as to the etiology, diagnosis and treatment of diseases of the nasal accessory sinuses and the serious ocular disturbances often due to their disturbed functions as the result of pathological conditions or mechanical obstructions. Prior to 1906 only one paper on this subject appears in the transactions of this academy. Since then more than twenty papers with discussions have been read and published by our members.

Wonderful strides have been made, much good work has been done, much of the tall timber of ignorance and uncertainty has been cut, and, as the result of the closer relations of the oculist, rhinologist and internist, many hitherto unsolved problems of serious ocular conditions due to nasal conditions have been solved, and to many vision and comfort of body has been restored. The way has been well blazed, and to-day is being well paved for a greater work, for the last word has not been said as to the symptomatology, etiology, diagnosis and treatment, and, while many of our number have won "laurels and gratitude," there is yet much to be done, and the palm of victory that goes with success awaits the patient and persevering scientific oculist and rhinologist.

In our investigations we must remember that in this day of specialism there is danger of our becoming cyclopic, with only one eye that sees only the oto-rhinological part of the body, overlooking the possibility of danger that may result to the ocular apparatus to which it is so intimately related. We still find that each case is a law unto itself, the symptoms often vary as much as do the size, shape and positions of the sinuses.

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*Read at the Eighteenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, Chattanooga, Tenn., October 27, 1913.

Experience and investigation of the etiology of many of the serious ocular conditions frequently met with in our daily routine of clinical work brings increasing and unmistakable evidence of the truth that no one organ of the human body, when diseased, can be successfully treated to the exclusion of other organs and parts of that body. Often we find an intra-nasal condition, to all appearances presenting more than sufficient evidence for the cause of the serious intra-ocular trouble for which the patient consulted us, and we are disappointed and chagrined to find that when this is entirely removed the ocular condition is unimproved. On going deeper into other possible etiologic factors, we find a toxemia to be the cause of the ocular disease. This is more frequently of an auto-intoxication nature and due to faulty metabolism, beginning primarily in the gastro-intestinal tract; but it must not be forgotten that we may have serious ocular conditions resulting from an auto-intoxication in which the alimentary canal has no part whatsoever. For this reason, if for no other, the oculist must needs have the assistance of not only the rhinologist but also of the internist, radiographer and laboratory expert.

In other words, the greatest accuracy and success oftentimes can be gained only by the working together of several specialists in the science of medicine as one man. As yet we know of very few pathognomonic etiological factors in the production of serious changes in the fundus oculi which results in either blindness or greatly impaired vision, and our diagnosis is often made by exclusion of other possible causes of the condition, and our treatment directed to attacking vigorously that which presents the greatest evidence of being the predominant etiologic factor.

This is not the time, place nor occasion for me to consume valuable time by reporting individual cases illustrating some of the serious eye conditions which I have met, due to intra-nasal and nasal accessory sinus disease. A body of men, such as this is, whose membership contains the majority of the leading oculists and rhinologists of America, does not expect in minute detail clinical histories in the presentation of a topic for discussion at its annual meeting; hence, I omit this and present briefly the lessons I have learned from my own individual work, and submit them for your consideration and discussion.

I have had five cases of neuro-retinitis, nine of papillitis, three of "choked disc," one atrophy of the optic nerve, and five exophthalmus or posterior ethmoid cells; often both these were unsolved. In these cases the right eye was most frequently involved; and nearly all of them were complicated by a systemic condition, an autotoxemia, a low form of septicemia, neurasthenia or rheumatism. I refer in this report only to those in whom the diagnosis of the intra-nasal and accessory sinus condition was verified by subsequent operation. In twenty of the cases the sphenoid sinus and posterior ethmoid cell walls were extremely thin and of large size; in the remaining four cases the very opposite condition was found. The best explanation of this I think, is that given by Frank Brawley, who says: "Involvement of the eye is more likely to occur from infection in thin-walled sinuses or where dehiscences occur in the bony walls, producing direct contact between the lining membrane of the sinus and the orbital periosteum, or even the sheath of the optic nerve. Adhesions may occur between the orbital periosteum or the optic nerve-sheath and the bony sinus walls, secondary to inflammation of the latter, and these adhesions may become vascularized, offering a direct route for infection of the ocular structures."

I have frequently observed in cases where there was a difference in power of accommodation in the two eyes, that this was relieved by getting rid of a middle turbinate which was hypertrophied, or from any cause producing pressure in the nose, either against the septum or antral wall. In those cases with very narrow "nasal attics," if free ventilation and drainage through the infundibulum is due to an obstructing middle turbinate, this should be removed, even though it presents no pathological changes. Its long-continued pressure in this region—the vicious circle—will eventually lead to pain, pus-formation and ocular disturbance as the result of the negative pressure it causes within the accessory sinus. These points have been emphasized by Pynchon, Ballenger and myself in this academy on other occasions and need not be dwelt upon at length again.

In five cases of amblyopia in the right eye, where the vision varied from 20/180 to 20/200, which could not be improved by any lens, three of them had pansinusitis of the right side, but there were no intraocular or fundus changes except slight edema of the nerve head. In these the radical Killian operation was performed and all the accessory sinuses on the right side were found to be filled with pus and soft granulations—the sphenoid sinus was very large, the walls thin and necrotic. Immediate relief of the local and systemic (septic) symptoms was the result of the operation, but there was no improvement in vision in either case for several months, when there was gradual and permanent (no return over three years) restoration of vision. These cases, as all those I operate for extensive intra-nasal and accessory sinus disease, were given small doses of iodin in daily increasing doses, and reconstructive tonics for from three to six months, beginning the third or fourth day after the operation.

The other two cases presented no evidence of any pathological condition either in the nose or accessory cavities, but the upper portion of the nose (the attic) was very narrow, and the small middle turbinate pressed tightly against the septum and antral wall, completely obstructing both ventilation and drainage through the infundibulum. Besides the loss of vision, which was accidentally discovered in the right eye by the patient, and in the other by the oculist, both patients complained of nothing except a morning headache, which persisted from the time he got out of bed till about ten o'clock, when it began to wear off. He could tell when relief was near because he always had an attack of sneezing a short time before. At the time of operation I had difficulty in cocainizing the parts with the finest cotton-covered probe because of the extreme narrowness of the nasal attic, and even after the soft tissues were retracted by adrenalin the space between the turbinate and septum, as well as the antral or outer wall of the nose was so narrow that it was impossible to thoroughly apply sufficient of the local anesthetic to render the operation bearable.

In neither of these (extreme cases) and in many others of a similar nature, in which I have removed the middle turbinate, did I find evidence of any pathological change which had taken place in either the turbinate body or accessory sinuses. The pain was probably due to negative pressure caused by obstructed ventilation and drainage of the frontal and sphenoid sinuses as well as the ethmoid cells; the amblyopia was due to toxemia, the result of congestion or venous stasis from the same cause. The relief of the morning headache was within a week following the removal of the middle turbinates, the restoration of vision within six weeks.

Attention is called to these five cases because they represent the extreme type and illustrate forcefully some of the very serious conditions of the visual apparatus resulting from intra-nasal disease and abnormalities. I have met with several cases of blepharospasm, dacryocystitis, pain in the eye with varying degrees of photophobia and epiphora, which were the result of nasal synechia following the use of the cautery or from hypertrophied or polypoid degenerated turbinates.

Within the past three years I have been especially impressed with how little intra-nasal surgery is necessary to relieve the most complicated and serious conditions in which the visual apparatus presents the most alarming symptoms, and I am finding fewer cases that require the radical external operation even for the relief of suppurative pan-sinusitis. In this respect the radiographer has been of inestimable help to us, in that he is able to demonstrate to us the abnormalities, peculiarities and oftentimes the pathological indications that each case may present; thus preventing our groping in the dark for the opening into the venous nasal accessory sinuses. The pendulum has swung from the extremes of conservatism and radicalism, and these extremes are now uniting into what might appropriately be termed conservative radicalism.

The special field in which the rhinologist labors, when any surgical intervention is indicated in order to relieve pain, maintain health or to save life, differs from the surgery in any other part of the body, in that ventilation is as necessary as drainage. The highest aim of the rhinologist should be to save as much of the active functioning nasal mucosa as possible and not destroy it. I have contended for years and now repeat the contention with emphasis that the "offshoot" of the ethmoid bone, known as the middle turbinate, is more frequently at fault in the production of intra-nasal and nasal accessory sinus disease than all other causes combined, because of its proximity to the infundibulum and the so-called vicious circle of the nose—when it is enlarged or adherent it blocks both ventilation and drainage of all the sinuses, and its thorough removal with a minimum amount of traumatism and after-treatment in the form of vapors, sprays, douches, ointment and powders is productive of more good than all other intra-nasal operations or treatment.

In conclusion, no two specialties or specialists ought to be more intimately related than the oculist and rhinologist, and these two far more frequently than is at present admitted need the co-operation of the internist, radiographer and laboratory expert.

The work of Brawley, Ziegler, Pynchon, Ballenger and de Schweinitz in the American rhinological and ophthalmogical field, who have gone so minutely and accurately into the investigation and elucidation of this subject, deserve not only special mention from me but the thanks of this academy.

Short Street.

BRAIN INFECTION FROM SINUS DISEASE.*

DR. WOLFF FREUDENTHAL, New York City.

Although for a long time otitic brain infections have been known and studied throughout the world it is only of late that attention has been paid to those of nasal origin, in spite of the fact that such cases have been observed in every large clinic. During a recent trip through Europe the writer had occasion to discuss the subject with many of the leading men abroad and was astonished at the large number of fatal accidents that had occurred in many of the prominent clinics. Alas! these cases are often not reported abroad and seldom in this country. I know of a large number of fatalities in my own city but have yet to see them published.

The first question of interest is: In what way is an infection carried to the cranial cavity after any operation on the nose or throat, or even without an operation? There are four possibilities: It may be propagated (1) by continuity; (2) by way of the blood-vessels; (3) by way of the lymphatics; and, finally (4) by way of the lymphatic sheaths of the olfactory nerve.

Hajek directed attention to the possibility of brain involvement resulting per continuation even though the bones and dura mater may appear intact on *macroscopic* inspection. In one case published by him he proved the correctness of this statement by *microscopic* examination. He and Hinsberg also demonstrated the second mode of infection—viz., the transmission of the micrococci through the blood-vessels. Hajek had previously found streptococci in the veins in rhinogenic endo-cranial infection and later this observation was corroborated by others.

Of great importance as regards the third mode of possible infection are the experimental researches of Zwillinger of Budapest on animals and men. His studies on the lymphatics of the upper portion of the nose and their relation to the peri-meningeal lymphatic cavities resulted in the following conclusions presented by Zwillinger at the last International Medical Congress in London and kindly communicated to me by the author:

1. The relation of the perimeningeal spaces of the subdural and subarachnoid space with the lymphatic network of the mucosa of the frontal sinus by way of the nasal mucous membrane in animals

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*Read before the American Academy of Ophthalmology and Oto-Laryngology. Chattanooga, Tennessee, October 27, 1913.

(rabbits) is a matter of knowledge. 2. The direct relation of the peri-meningeal lymph spaces with the lymphatic network of the mucosa of the frontal sinus has been demonstrated. 3. The relation of the peri-meningeal lymph spaces with the lymphatic network of the mucosa of the frontal sinus by independent routes passing through the bones has also been determined. 4. Anatomical evidence of the relation of the lymph channels of the mucosa of the frontal sinus with the lymph spaces of the central nervous system in human beings has also been adduced. 5. The paths concerned in the occurrence of intracranial and cerebral complications of the frontal sinus comprise, besides those already known, the lymph channels of the mucosa of the frontal sinus which are in direct relation with the peri-meningeal lymph spaces."

The fourth possible channel of infection is by way of the lymph sheaths. In view of their anatomical features they should constitute the best reservoir for all invading bacteria (Miodowski). In a case of post-operative meningitis, Killian was able to macroscopically demonstrate the path of infection from the ethmoid cells upward, but the microscopical proof was lacking. Such evidence has but recently been afforded by Felix Miodowski at the clinic of Prof. Brieger in Breslau. Miodowski supplied the missing link, viz., the histological proof of the infection ascending along the sheath of the olfactory nerve. This was shown in three cases of submucous resection, and thus we are safe in stating that he has established this fact positively.

When an infection is once carried into the cranial cavity, no matter by what path, it is generally the frontal lobe that becomes involved and it is either its basal portion or the anterior or median region that is affected. If pus is formed it may go its own way, as, for example, through the orbit, or, as in the case of Westermeyer, from the antrum through the pterygo-palatine fossa to the brain.

Very peculiar is a case published by Hansberg, in which the right frontal sinus was affected (pus). The patient died and it was expected that an abscess would be found in the right frontal lobe. Instead, an old abscess was present in the *left* lobe. The right ethmoid cells were necrotic, while on the left side there was only a thickening of the mucosa of the frontal sinus and ethmoids. It is, therefore, likely that the infection found its way from the mucosa of the left frontal sinus to the meninges through the blood-vessels. (See also Oppenheim and Cassirer.) In many other instances such small abscesses have not been recognized *intra vitam* as they do not manifest symptoms. The diagnosis of rhinogenic brain complications, therefore, is occasionally extremely difficult. The reason for this is not alone the smallness of an abscess, as in the above case, but often, as Gerber has pointed out, it is attributable to the fact that the primary affection of the sinus may be latent and may not give rise to any symptoms whatsoever, and for that reason an examination of the nose is often omitted. Finally, we must remember that a fully developed rhinogenic meningitis is in no way different from any other form of meningitis, so that for this reason also a case may be overlooked.

We now come to the most important question: When shall we operate? As regards acute cases, the idea has prevailed that almost every one of them improved without operation. This does not coincide with my experience. Too many cases have returned for treatment after they had been successfully treated by others, as well as by myself. Sometimes an increase of an existing coryza or a slight attack of the grip* has caused a lighting up of an empyema that has been considered cured. In some instances this process recurs once or twice a year and the case may go on indefinitely. Such cases, and others of similar character are not so very rare as is generally believed. In still other instances the symptoms become suddenly so grave that an immediate operation is indicated.

All these cases point to the fact that the process is often latent giving rise to no symptoms. If such a large number of unrecognized latent cases were not going around, how would it be possible for so many pathological changes to be found in the sinuses at autopsies? George F. Cobb of Buffalo reported several deaths in the course of latent sinusitis, so that there is reason to seriously consider a radical operation at any time. And yet, in spite of all these arguments, operation should not be resorted to in the majority of these cases. The policy is indicated here as in acute mastoiditis. While in the latter a simple incision into the membrana is very often sufficient, in the sinuses the removal of pus by lavage or other minor means will establish drainage and cure a large percentage of cases. Bulging of the eye, edema of the lids or upper lip, persistent fever, persistent severe headache,—not to mention brain symptoms—are indications for immediate radical intervention.

When we have to deal with a *chronic* empyema the decision is much more difficult. Every operation of the frontal sinus, for example, has to be considered as dangerous. Right here I wish to emphasize the fact that the results of operative procedures on this sinus are most satisfactory. I have had two cases that left the hospital on the fourth day after the operation and were completely cured in a remarkably short time. At a meeting of one of the local medical societies I presented ten consecutive cases of operation for chronic frontal sinusitis that had recovered in a very satisfactory manner. In the next case operated upon, the patient,—a strong healthy woman of 27 years,—died of brain infection. Keeping that last accident in mind, I would ask: Shall we postpone an operation so long that perhaps the pus breaks through into the bulbus spontaneously or forms an abscess of the frontal lobe, with a fatal termination; or shall we leave the decision to the patient? The last proposition is considered the wisest by many, but I absolutely condemn it. A patient, no matter how intelligent he may be, is never in a position to judge what is best for him. We have to do that for him and take our chances. True enough, a radical operation is not always a radical cure, and in some instances the patient may succumb to an operation. But if you watch a chronic case carefully you will be able to judge whether or not it is necessary to operate. Symptoms like those mentioned above, in referring to acute or latent cases, will have to be considered also as strict indications for radical intervention.

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*Or are these symptoms only due to an outbreak of a latent empyema?

But take a case with a chronic purulent discharge and occasional headaches which may at times become quite severe. If the patient is anxious to get rid of his trouble, or if he cannot properly follow his vocation on account of its presence he will readily submit to the radical operation proposed by you. If these same symptoms, however, do not impair the patient's health I should hesitate to suggest an operation, for such patients would rather endure all these slight ailments than take even a remote risk of dying soon after its performance. As much as it is our duty to insist with all our authority upon immediate intervention in cases with the urgent symptoms mentioned above, there is no justification for *persuading* a patient to undergo a radical operation in a case like the one just mentioned. It requires large experience, good judgment, and careful attention on the part of the physician to determine when to operate, and the best men may occasionally disagree as to its necessity.

In presenting the histories of some of the cases seen by me, you will note that some of the patients who died after operation might have been saved if it had been performed earlier, while others might still be alive if it had not been done at all. Permit me first to report some cases of cerebral infections of *dental* origin. Although this class does not strictly come within the scope of our theme, they have all been referred to my service at the hospital and similar ones have probably come under your own observation. Besides, the infection often spreads through the sinuses before affecting the brain. In this category, however, are not included those chronic empyemas of the antrum due to carious teeth. These cases have been recognized for many years; in fact, ever since the beginning of our knowledge of sinus disease. What I am alluding to are the acute infections following extraction of teeth, and of that class I have seen an unusually large number. This is due to two factors: The hospital to which all these cases were brought is situated in the poorest and dirtiest part of Manhattan, and it is more than likely that these persons were infected in their own tenements. Moreover, many of these infections were undoubtedly due to negligence on the part of the dentist. This is not an accusation against American dentistry, for we all know that its achievements have been remarkable. American dentistry is superior to that of all other countries, and we laryngologists who have adopted many an instrument and device invented by dental surgeons fully appreciate that. But that many dentists utterly neglect all asepsis is a matter of common knowledge. Of course, an infection may occur in spite of the utmost care, but I have seen many cases in which the dentist was not free from responsibility. Let me give you an example:

E. B., a poorly nourished child, 6 years old, had suffered from toothache several days before admission to the hospital. A tooth was extracted two days later, and very soon afterward the face began to swell. Pus was discharged from the socket, the face became painful and continued to swell more and more, together with the lips and the eye on the affected (left) side. Fever was present. On admission, the child was stuporous. There was strong fetor *ex ore,* and marked swelling of the face, which now extended to the right side, so that both eyes were closed. Large amounts of purulent discharge. Temperature 104.2° F.; pulse 150 to 180; respiration 36 to 44. The general condition constantly grew worse. To reduce the very pronounced cellulitis, several incisions were made but no pus was found. Death occurred from septicemia three days after the operation. The report of a physician, who happened to be present at the time of the extraction of the tooth, leaves hardly any doubt that the infection was to be attributed to the carelessness of the dentist.

Another case very similar to the one just mentioned occurred last summer:

Sam W., aged 40; storekeeper; admitted June 9, 1913. Sudden onset after tooth extraction, with chills and fever, restlessness, delirium, swelling of cheek, anorexia and constipation. His present illness dates back to seven days before admission, when patient, after having had his second upper bicuspid tooth extracted, was suddenly seized with chills, followed by high fever recurring practically every day, swelling of right side of face and upper part of right side of neck, restlessness and delirium; the last had been almost constant for past three days except when asleep and was of a maniacal character. He did not ask for food but seemed very thirsty. There were no urinary or respiratory disturbances.

Operation the same day. The antrum was opened and a great deal of pus was found. The same condition was present in the frontal sinus. There was a defect at the upper inner wall through which the dura was bulging. On incision, pus was evacuated. On following day, exitus letalis, due to septicemia. In this case of abscess of the brain, a colleague witnessed the extraction of the tooth and he too volunteered his opinion as to the absence of asepsis.

The clinical picture is different in a number of other infections of dental origin. In these cases the sinuses are not involved and the infection most likely is transmitted by way of the lymphatics to the meninges and brain. It is quite useless to open the sinuses as one would find nothing pathological microscopically. All these cases give an absolutely bad prognosis.

Of much greater importance are the cases of brain infection originating in the *accessory sinuses,* and of these the most prominent are the affections of the frontal sinus. Patients with empyema of this or the sphenoidal sinus are in constant danger whenever there is insufficient drainage. Even with drainage established the sinus may close up at the slightest provocation and retention of pus with its sequelae may ensue. For that reason, such patients should be under constant supervision. Fortunately, nature assists in many instances. But, as physicians, we cannot rely upon mere luck or nature. It is of prime importance, therefore, to decide when to advise a radical operation in these cases. With that in view, some cases are narrated here, ranging from the simplest to the most complex.

Case 1. S. A.; aged 29; merchant; has not been able to breathe through his nose for the last three years. Left-sided headache at times, and discharge. He had seen several specialists and had had the septum straightened and both middle turbinates removed. The diagnosis of chronic empyema of the left frontal sinus is positive. In spite of the advice of his family physician I did not urge the necessity of a radical operation and the empyema has remained in about the same condition for the last two years.

Case 2. Mrs. L. R.; aged 48; had suffered from "catarrh" for many years. After an acute tonsillitis there appeared a profuse muco-purulent discharge from the nose. This ceased a few days ago, and since then there had been severe frontal headache and slight rise in temperature. Diagnosis: Acute empyema of left frontal sinus and right antrum. The left turbinal was removed immediately, but the patient felt worse. Headache more intense and total loss of appetite. Washing out the sinuses gave little relief. As the daughter of this patient is a physician she could watch the case carefully. More than once in the course of the next ten days I was tempted to advise radical operation, when one day there was an immense discharge of pus and patient experienced immediate relief. She has been well for half a year. No doubt the opening of the frontal sinus was clogged higher up and patient was in danger until it was freed.

In marked contrast to this case is one reported by the writer in the fall of 1908, the history of which may be briefly recorded again.

Case 3. The patient, a woman of 25, came to the clinic with an acute suppuration of the right frontal sinus. The middle turbinated body was not removed because her family physician objected. Several weeks afterward she returned with edema of the eye and cheek, retention of pus, vomiting, etc. Operation revealed an abscess of the frontal lobe of which she died four days later. There is little doubt that this woman's life would have been saved by an early operation on the frontal sinus, or perhaps by the simple removal of the turbinal.

I shall not mention the cases reported by me in 1910, which can be found in THE LARYNGOSCOPE (January, 1910), but ask permission to describe several new cases which I think you will find of great interest.

Case 4: Stanislaus K.; aged 35; chef; was referred to me through the kindness of Dr. D. of this city on April 8, 1913. Patient said that he had recovered from an attack of appendicitis a week ago. A few days later, his head ached over the right temple, the pain spreading to the center and then to the back of the head.

The nose was free. Dr. D. had seen him on April 4, and examination of the eyes disclosed the following conditions: "*Conjugated deviation* of the eyes to the right. R>L=0.5; V=½. Presbyopia, D. III. Ophthalmoscopically: Slight congestion of both optic nerves, with hyperemia. R>L. Field normal; no scotoma; no enlargement of blind spot."

As the doctor had some suspicion in regard to the accessory sinuses, he sent the patient to me. The man was led into my office by his wife, his gait being unsteady. In walking he leaned toward the right and he said that he also felt dizzy while lying in bed. Butted into objects to his right. On examination, an acute right frontal sinusitis was found and the sinus was irrigated. Some pus was evacuated and the patient felt easier immediately.

April 10: Part of right middle turbinate removed. Daily irrigations of sinus. *April 11*: Could not move his eyes to the middle line. This occurred after syringing the sinus. *April 17*: Vomited and felt worse, but after the syringing was better again. The question of a radical operation was seriously considered but patient did not consent.

At the beginning of June, 1913, I saw him for the last time, when his condition had improved remarkably. Dr. D.'s report of June 15 says: "Conjugated deviation as well as congestion of optic nerves *has disappeared*. Pupils and muscles were always normal, i. e., no paralysis. Diagnosis: Some local focus beyond the corpora quadrigemina. Embolus or frontal sinus affection?"

The writer is inclined to attribute the whole process to the frontal sinus primarily. What followed afterward is difficult to decide; whether it was a mere pressure on the frontal lobes or meningitis will probably be determined later, for sooner or later the symptoms will again recur. The writer does not know the patient's whereabouts since June, and would be thankful for any information.

Case 5: Miss J. S., aged, 25, was referred to me by Dr. Henry S. Oppenheimer. She complained of pain in the eyes and in the middle of the forehead, for which she had consulted several oculists. Dr. Oppenheimer did not find any cause for the pain in the eyes, and sent her to me. Diagnosis: Chronic empyema of left frontal sinus and left sphenoidal sinus. The x-ray plates showed cloudiness over both frontal sinuses and over the region of the anterior ethmoid cells. The frontal sinuses are small, but very deep in the antero-posterior direction. The sphenoidal cells are apparently small, but the air spaces are not occluded." We shall see that this latter statement was erroneous.

The usual treatment was inaugurated, i. e., the establishment of drainage for the left frontal sinus and sphenoidal sinus, with the result that the patient felt better while under treatment. Then she was sent to the mountains for three months. On her return she was like another person—no pain, no discharge—and appeared perfectly healthy. In the middle of the following winter, however, the old trouble recurred, and the latent empyema again became active. At this stage a radical operation was advised but was refused on account of the possibility of a scar. In the summer of 1912, she again went to the mountains and returned apparently well, only to show the old symptoms again in the winter of 1912-13.

Finally, in April, 1913, the family decided to have the operation performed. That was about a year and a half after I had first advised it. On April 2, 1913, the left frontal sinus was opened, and it was found to have a wide communication with the other side. The dura was exposed at two places on the inner wall but appeared normal. The left sphenoidal sinus was of enormous size.

April 5: Patient felt comfortable, although always restless; the night before unconsciousness. Temperature, 103°-104° F.; pulse, 74-80. *April 7*: Very restless. Right arm apparently paralyzed; in left arm, clonic cramps. *April 8*: Convulsions of right side of face. Stiffness of neck; pupils narrow; little reaction. Babinski, positive. Lumbar puncture showed high pressure and dark fluid. *April 13*: Eleven days after the operation, exitus letalis. Autopsy not permitted. From the clinical symptoms there was reason to suspect meningitis, and, perhaps, a thrombus in the sinus longitudinalis.

Epicrisis: Here we have a case that at no time developed severe symptoms and at no time gave urgent indications for immediate operative intervention, yet on account of the constantly recurring symptoms, the chronicity of the case, and the impossibility of curing the disease by intra-nasal operation (septa in the frontal sinus) the writer advised radical operation. If this had been done when first advised it is probable that we should have found the inner wall of the frontal sinus intact and might have saved the patient's life.

It may be added that the x-ray findings are of interest. At the operation the sphenoidal sinus was found to be of extraordinary large size, while the skiagraphs indicated a small sinus. The frontal sinuses, on the other hand, were small but the antero-posterior diameter was very great on the skiagraphs. Is there a possibility of the sphenoidal sinus "overshadowing" the frontal sinus?

In connection with this I shall mention two other cases, the histories of which are not yet published but were given to me by Professor Herzfeld of Berlin during the summer. I shall present only excerpts of these interesting cases. The first one was a man of 57, who had sustained a trauma at the inner angle of the right eye at the age of 14. After several years this finally healed, but eighteen years later he was again injured in the same region. A fistula formed which discharged pus from the right frontal sinus for seventeen years. At an attempt to close this fistula it was found that the anterior wall of the frontal sinus was absent, due to the traumatisms and former operations on the sinus. Furthermore, it was observed that the cerebral wall of the *left* frontal sinus had a small defect, with a normal-looking but bulging dura. After the operation there was a rise in temperature and exitus letalis.

The remarkable points are that the patient's mind was absolutely clear, that he was up and about, without any complaints, and that only two hours before his death coma suddenly set in. The meningitis seems to have been produced by *continuity* through a defect found in the dura at the autopsy, a defect that could not be detected macroscopically seven days previously at the operation. H. mentions especially the seat of the defect on the left side, i. e., the side affected only secondarily. This has been noted in other cases as we have already shown.

Herzfeld's second case was a man of 29, who had suffered from purulent discharge all his life. Suddenly, acute exacerbation, with fever, edema of the eyelids on both sides, etc. Operation showed a periosteal abscess and empyema of the frontal sinus. After the operation the temperature became high, and there was some headache, stiffening of the neck, etc. For these reasons, a second operation was performed. After the cerebral wall of the frontal sinus was chiseled away a mass of fetid pus was evacuated (epidural abscess). The same night, exitus letalis. Autopsy: Purulent meningitis. "If the epidural abscess had been recognized and opened sooner the patient would probably have been saved. The persistent headache and high temperature after the first operation perhaps pointed likewise in that direction." From such histories we can learn a great deal and in the interest of scientific progress it is desirable that every one should publish his cases.

In regard to suppurations of the sphenoidal sinuses mention should be made of central scotoma as one of the early symptoms of cerebral involvement. This was demonstrated in a case published by the writer in 1910 (loc. cit.), as well as by W. Schulze *Passow's Beitrage,* 1911, p. 48.

In conclusion, the writer would say that he has operated on a great many cases of suppurative sinus disease—over 150 of frontal sinus affections alone—and that his death-rate has been remarkably low. In the last mentioned class he had only six fatalities. In spite of this, the so-called radical operations on the frontal sinus must be considered as dangerous and should be undertaken only after very careful deliberation. That even then mistakes will occur has been shown in more than one instance. Some cases which might survive for years with a defect in the cerebral wall will die of post-operative meningitis, while others will die if the operation is postponed. These and other problems will have to be solved by the combined efforts of all laryngologists. Their work will, we hope, clear up this very interesting question of rhinogenic brain involvement.

1003 Madison Avenue.

HYPERTROPHIED TONSILS INTERFERING WITH THE ACTION OF THE PALATE AND CAUSING DEFECTIVE SPEECH.*

DR. G. HUDSON-MAKUEN, Philadelphia.

One of the many objections offered to the removal of the faucial tonsils is the fact that the operation is liable to be injurious to the voice and speech, but little reference has been made to the fact that both the voice and speech may be impaired by not doing the operation or by leaving the tonsils intact.

I have previously called attention to the effect upon the palate of hypertrophied and degenerated tonsillar masses, the larger ones, by reason of their bulk and consequent pressure upon the pillars, interfering with the action of the palate and the smaller, degenerated and catarrhal masses, by reason of their sepsis and by the spread of their infection, appearing to so obtund the nervous mechanism of the palate as to cause a sluggish or paretic action of its muscles.

The effect upon the speech is similar to that of insufficiency of the palate from other causes, such as a cleft palate or other forms of paralysis.

The palate is a far more important organ in relation to the human economy than it is commonly supposed to be, and its function in phonation and articulation is not very generally understood. The palate is a movable organ and it is composed largely of muscles which have their attachments in other movable organs of voice and speech, notably the larynx and tongue. The palato-pharyngii muscles have attachments in the superior cornua of the thyroid cartilage, and thus they have been called thyroid tilting and cord stretching muscles in the production of voice. They are peculiarly well adapted to the performance of this function by reason of their location in the pharynx and the upward and forward direction of their pulling force when the levator muscles are in contraction; and anything that interferes with this action of the palatal muscles, even in the slightest degree, must have its injurious effect upon the character of the voice.

Moreover, another important function of the palate, and one that appears chiefly in articulation, is what has been called a valvular function, it being for the purpose of closing the air passage from the pharynx to the nostrils during certain of the explosive sounds of speech. A complete closure of this valve fails to take place in almost all cases of cleft palate even after a fairly successful operation has been performed, and it fails to take place also in various forms of paralysis of the levator and other muscles of the palate. The failure of this closure in a post-operative cleft-palate case is due to a lack of sufficient tissue to form the valve itself, and to a lack of sufficient contractile power in the muscles owing to cicatricial formations; and the failure of the valvular closure in paretic conditions of the palate, of course, is due entirely to the muscular insufficiency, which appears in varying degrees all the way from a mere sluggish action to a complete paralysis of the palatal muscles.

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*Read before the Section on Otology and Laryngology of the College of Physicians, Philadelphia, November, 1912.

There are two conditions of the palate which accompany or follow diseases of the faucial and pharyngeal tonsils. These are: (1) a hypersensitive or hyperesthetic condition of the muscles, and (2) an anesthetic condition, the former probably being the first or more acute stage of infection, and the latter a more profound and chronic stage. On the other hand, I have found the hyperesthetic condition predominating in those cases having degenerated faucial tonsils, which on account of their markedly septic condition produce a highly congested pharynx, while the anesthetic and slightly paretic palate seems to accompany the hypertrophied tonsils, or those which interfere with the motility of the palate in a purely mechanical way.

The patient whom I shall show you is one illustrating this latter condition in a very marked manner, the tonsils themselves being obstructive because of their size rather than septic on account of disease or degeneration. Moreover, they are unusually large in their antero-posterior diameter, thus bowing the palato-pharyngii and palato-linguo muscles during their action in speech-production, and interfering to such an extent as to render the closure of the palatal valve quite impossible even when the levators are contracted to their utmost. This is a good illustration, therefore, of obstructive faucial tonsils interfering with the action of the palate and causing the characteristic defects of speech and voice.

The boy had formerly a good singing voice, but during the last few years he has been obliged to give up singing, and his speech, as you will observe, is defective chiefly because in the explosive consonants, in which the palatal valve should be closed, it remains open and there is an escape of breath through the nose. The effect is somewhat similar to that of a leaky exhaust valve in a gasoline engine.

The treatment of this condition would seem to me to be a removal of at least a sufficient amount of tonsillar tissue to permit of a freer action of the palatal muscles. My own practice is to do a complete tonsillectomy only in those cases in which there is a marked degenerative and catarrhal condition of the tonsils with thickening of the plica and capsule generally; but in those cases in which there is mere hypertrophy of the tonsillar masses I am of the opinion that a more or less thorough removal of the tonsillar tissue only, leaving the capsule intact, although the more difficult, is the more desirable operation so far as the speech and voice are concerned, because the resultant motility of the palate is better than it is in those cases following complete extra-capsular tonsillectomy, in which we are liable to have cicatricial adhesions and contractions. This, however, is a subject for discussion, and a most interesting one because it includes the whole question of so-called tonsillotomy vs. tonsillectomy.

1627 Walnut Street.

Prevention of Adenoids. WM. A. BRADY, *Med. Rec.*, May 24, 1913.

The cause of adenoid hypertrophy in children, according to the author's deduction, is lack of fresh air and improperly and overheated living rooms. Weather-phobia and excessive indoor life in overheated rooms produces the soil upon which adenoids develop. Urge the children to play out of doors in all kinds of weather and send them to school where the open-air idea is practiced. The family should be taught to acclimate themselves to living rooms where the temperature is from 60° to 65° throughout the winter.

LEDERMAN.

Radio-Active Substance in Treatment of Morbid Conditions of Mouth and Teeth. M. LEVY, *Deut. Med. Wchnschr.*, June 5, 1913.

In cases of psoriasis of the mucosa of the mouth, in pyorrhea alveolaris, loosening of the teeth without pus, marginal gingivitis, leucoplakia of the tongue and mouth, dental fistula, and stomatitis ulcerosa, Levy found this therapy to be very effective. ED.

ACUTE PHLEGMONOUS EPIGLOTTIDITIS.*

Dr. M. D. Lederman, New York City.

Acute phlegmonous epiglottiditis is an infectious process involving the submucous structures of the epiglottis and contiguous tissues. In the four cases which came under my observation suppuration accompanied the inflammatory syndrome.

The disease is characterized by a sudden onset with distinct local manifestations. A seemingly normal person experiences a sharp pain in the throat accompanied by painful deglutition and a sense of fullness or obstruction in this region. The act of swallowing soon becomes an effort and the patient is very uncomfortable and distressed. The voice is distinct and guttural. These symptoms rapidly progress and may assume a serious aspect in a few hours.

At times the attack is ushered in with a chill, followed by a rise of temperature. Headache, nausea, and general malaise may accompany the other symptoms. The course of the temperature is not regular. It is highest at the invasion, falls abruptly as the process improves, and again ascends if complications arise. The pulse does not show much irregularity, but is weak and compressible.

On inspection, the pharynx appears normal or slightly congested. Further examination shows an enormously swollen epiglottis. It is dusky red in color, three or four times its natural size, and so obstructs the laryngeal orifice that it is impossible to obtain a clear view of that cavity. In all my patients the edema extended to the ary-epiglottic folds. In two instances this infiltration was so marked as to cause difficulty in breathing. One woman was brought into the Lebanon hospital in the ambulance in a cyanotic condition. In none of the cases was there any history of previous throat infection.

In this affection the edema is usually limited to the oral surface of the epiglottis, and does not extend to the laryngeal side of the cartilage. It rarely reaches the interior of the larynx. There is an anatomical reason for this peculiarity. Schnitzler[1] states that the submucosa of the lingual surface of the epiglottis is loosely attached while that of the laryngeal side is closely connected to the cartilage, except in the region of the nodule. Furthermore, the submucous cellular tissue of the epiglottis extends unbroken to the latteral walls of the pharynx and to the base of the tongue; thus accounting for the infiltration at this site in these cases and in infectious diseases of the tonsil and tongue.

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*Read at the Nineteenth Annual Meeting of the American Laryngological, Rhinological and Otological Society, Washington, D. C., May, 1913, and at the Meeting of the Laryngological Section of the New York Academy of Medicine, December, 1913.

While edema of the ventricular band is sometimes present we seldom see a serous extravasation of the true cord because of its closely attached musculature.

Acute edematous diseases of the epiglottis and larynx is rarely seen in children. In a series of 245 cases collected by Sestier,[6] only twice did the affection occur as a primary lesion.

Our colleague, Clement F. Theisen,[2] called attention to acute infection of the epiglottis some years ago, in his very instructive report of three cases of angina epiglottidea anterior. The attack came on suddenly, with elevation of temperature and symptoms associated with an acute septic process. In all the cases there was considerable edema of the anterior surface of the epiglottis, and in two of them the ary-epiglottic folds were involved. The subjective symptoms were similar to those I have mentioned. No purulent secretion followed the surgical treatment. Nevertheless, the bacteriological examination of the exudate showed the presence of a mixed infection (staphylococcus and pneumococcus, and streptococcus and pneumococcus). These examinations were made from the secretion taken from the deeper tissues immediately after the infiltrated submucosa had been scarified and were not surface contaminations.

In two of my cases the same micrococci were found in the purulent discharge; therefore such cases should be considered acute primary infections. That this disease is not of recent origin is shown in Theisen's article, where he refers to a case reported by Mainwaring in 1791, showing all the typical symptoms.

The infiltration that follows the invasion of any pathogenic bacteria may be either serous or purulent in character.

In commenting upon the origin of septic infections of the throat, Semon[3] calls attention to the conclusions of Dr. Max Jordan's[4] investigations on the "Etiology of erysipelas." Jordan states: (1) There is no specific pus microbe. Together with the streptococcus and staphylococcus there are a great number of bacteria which will cause suppuration. (2) That pyogenic micrococci can produce all forms of inflammation besides the purulent variety. Semon further says that in these acute septic lesions, though they differ somewhat in their appearance and location, pathologically they are identical and only differ in their virulence. Furthermore, it is absolutely impossible to differentiate between the edematous and the purulent types of infection.

In considering this phase of the disease Theisen[2] quotes the observations of Welch, who found that when the pneumococcus of the edematogenic variety (diplococcus lanceolatus) was injected subcutaneously into the tissues of some of the lower animals, it uniformly produced extensive local subcutaneous edema. He expressed the opinion that the pneumococcus was a factor in the production of the edema in his cases.

That certain regions are primarily attacked is probably due to a break in the continuity of the mucous membrane, thus permitting ready entrance of the pathological factor. When we consider the numerous forms of bacteria constantly present in the cavities of the upper air passages, it is surprising that we do not encounter more cases of these serious infections. The tissue resistance must be very great.

In the cases herewith reported there were no distinct etiological factors to account for the infection of the epiglottis except in one instance. This patient had been in a sanitarium three years before for the treatment of pulmonary tuberculosis, but was discharged in good condition. Three of the patients were females, and the other was a young man. All recovered.

Case 1: This case has been previously reported. A young married woman, 25 years of age, retired in good health. At 7 o'clock the next morning she was suddenly wakened by a sharp pain in the throat, which persisted throughout the day, being much aggravated by swallowing. A feeling of fullness in the throat, with pain in the right ear were also experienced. Severe headaches, pains in the back and limbs, chilliness, nausea and vomiting were accompanying symptoms. The temperature at 3 p. m. of that day was 104°; pulse 90. Nothing abnormal was seen in the pharynx at that time by the attending physician. Twelve hours after the onset, a further examination was made by a laryngologist who found the epiglottis very edematous and partially hiding the laryngeal structures, which, however, were normal in appearance. Local treatment was instituted with free purgation. Ice was applied externally and internally, the larynx was sprayed with adrenalin and cocain solution, and the epiglottis was painted with a 50 per cent solution of argyrol. The edema gradually increased during the night, and an area of induration appeared on the lingual surface of the epiglottis near its base on the right side. The serous infiltration had spread to the adjacent pharyngeal wall, base of the tongue, and aryepiglottic folds. The next morning at 8 o'clock, I saw the young woman in consultation. She was resting upright in bed, had an anxious expression, and spoke in a guttural voice with considerable difficulty. A constant effort to clear the secretion from the throat was noticed. Respiration was embarrassed and the patient gave the impression of being very ill. She remarked that the lump in the throat felt much larger than on the previous day, and that deglutition was extremely painful and difficult. Dr. Barnert, who was in attendance, stated that the local condition had increased very rapidly and had assumed a serious aspect.

On inspection, I found the pharynx quite normal, but the laryngeal mirror brought to view an enormously swollen epiglottis, dusky red in color. There was an indurated region at the base of the epiglottis more prominent than the neighboring tissues, while the edema extended to the base of the tongue and to both ary-epiglottic folds. There was also some infiltration of the right ventricular band, so that only a portion of the interior of the larynx and the left vocal cord was visible. The latter was not affected. Immediate operation was advised, and on making a deep incision into the indurated area we were much pleased to see about a half dram of foul-smelling pus come out. The epiglottis was further scarified to lessen the edema. Following this treatment, with the continuance of the adrenalin application, ice internally and externally, the local condition improved for several hours. Then a re-accumulation of pus caused a return of the edema at the base of the tongue and ary-epiglottic folds. Dr. Barnert reopened and dilated my original incision with a blunt instrument and gave exit to considerable retained purulent secretion. A leech was applied to each side of the neck and in two hours the patient felt greatly relieved. The temperature returned to normal, but deglutition remained quite painful until a moderate-sized slough came away. In a few days the epiglottis had resumed its normal outline. On the eighth day the patient was discharged from observation, with nothing to show for her alarming experience except a shallow depression at the site of the infection. Examination of the pus showed chains of streptococci and some encapsulated diplococci, probably the pneumococcus.

Case 2: Mrs. P., 26 years old, was brought to Lebanon Hospital in the ambulance during the night of December 15, 1912. Three days prior to admission she felt chilly and a sudden pain in her throat. She soon afterward experienced difficulty with pain in swallowing, also some disurbance in breathing, and a constant desire to clean the throat from secretion. She had an irritating cough.

These symptoms gradually became aggravated until she was brought to the hospital.

On her arrival, the house-surgeon found the patient cyanosed and dyspnoeic. In a muffled voice she complained of great distress and obstruction in her throat. Her general appearance indicated a grave condition. The throat was immediately examined but nothing abnormal was found in the pharynx except a marked pallor of the mucous membrane of the soft palate and pharyngeal wall. The epiglottis was edematous and greatly enlarged. The edema involved the ary-epiglottic folds on both sides, and only a restricted view of the interior of the larynx could be obtained, which did not seem to be involved. The temperature was 102°; respiration 28; pulse 94. Examination of the chest showed tactile and vocal fremitus slightly increased with some dullness on right side. Voice and breath-sounds could be heard distinctly, both anteriorly and posteriorly at the same side. No active symptoms were noted. Palliative treatment consisted of free purgation, adrenalin spray, 1-3000, with ice internally and externally. Tracheotomy instruments were kept at hand, as the woman's condition demanded that all possible precautions be observed. The symptoms subsided during the next few hours, and when I saw her the next day the face was but little cyanosed, though phonation and respiration were decidedly affected. She was fairly comfortable in an upright position. Deglutition was very difficult and painful, and only accomplished after considerable effort which brought on short paroxyms of coughing. The pharynx revealed nothing of especial moment excepting the pallor previously mentioned. The appearance of the epiglottis suggested a small sausage. It was bluish-red and almost entirely obstructed the superior opening of the larynx. No distinct picture of the interior could be seen. The edema was very decided in both ary-epiglottic folds; the arytenoids were very prominent, but showed the translucent nature of the infiltration.

Under cocain anesthesia, the epiglottis was incised, but only after several deep incisions did I locate the pus-cavity. In this instance also a considerable amount of foul-smelling pus was discharged. The ary-epiglottic region was incised to further drainage. The after-treatment consisted of half-hourly applications of cold 25 per cent ichthyol-glycerin mixture. Ice was applied to the neck and was given to the patient between treatments. Ten grains of urotropin in solution were administered every four hours for its antiseptic effect. Fluid diet was continued until the local condition permitted solid food. In twenty-four hours there was sufficient improvement to lengthen the interval between the ichthyol applications. No attempt was made to disturb the patient during sleep so long as the respiration was not too labored. This method of treatment was continued until the subsidence of the local trouble. No further complications developed and the patient left the hospital at the end of eleven days, in good condition. The temperature never rose above 102°, and gradually dropped to normal. Examination of the purulent discharge showed a streptococcus infection. No tubercle bacilli were found, and I consider that this was an acute infectious process independent of her pulmonary condition. This patient also received two doses of streptococcic vaccine (P. D. & Co.) 40 millions each.

Case 3: R. K., female, 22 years of age, single, admitted to Lebanon Hospital February 9, 1913. Never had any previous serious ailments. A few days prior to admission she felt a sudden pain in the throat, accompanied by painful and difficult swallowing and some interference with breathing. These symptoms gradually progressed until it was necessary to enter the hospital. Physical examination was negative; temperature 101°, pulse 104, respiration 28. The pharynx was slightly congested, but the epiglottis was decidedly swollen, dusky red, with the edema extending to the left ary-epiglottic fold. She could swallow only fluids, with considerable effort, and also complained of a lump in her throat. She was given the usual local treatment (ichthyol and ice). When I examined her on the following day the same state of affairs existed, but the patient stated that she felt better than when admitted and had a fair night. After the parts had been cocainized, a small yellowish focus about 3 mm. in extent was seen at the base of the epiglottis on the left side near the root of the tongue. This was incised and a few drops of pus observed. The epiglottis and ary-epiglottic fold on the same side was also scarified. The ichthyol-glycerin and ice treatments were continued as before, with increasing intervals, as the local picture improved. No further trouble appeared, and the woman left the hospital at the end of nine days in good condition. The interior of the larynx was not affected. Unfortunately, no bacteriological examination was reported. Urotropin was administered in this case. This was a milder type of the disease under consideration.

Case 4: G. D., male, 26 years old, came to the throat department of the Lebanon Hospital Dispensary in the afternoon of April 22. He complained of a fullness in his throat, painful and difficult swallowing. His symptoms had started two days before, but he thought it was a simple sore throat, and used a gargle of peroxid of hydrogen. He recalled that he had felt chilly at the beginning of the attack.

As I was visiting in the Hospital at the time, the young man was brought to me for prompt surgical treatment. His temperature was 100.8°. On examination, I found an enormously swollen epiglottis, with an edema of the base of the tongue reaching half way to the free surface of the epiglottis. Some purulent discharge was seen along the right side of the lingual attachment of the epiglottis. Both ary-epiglottic folds were edematous. A restricted view of the larynx showed no involvment of the interior. Under cocain anesthesia, a liberal incision was carried into the infiltrated mass at the base of the tongue and epiglottis, and a considerable quantity of pus was discharged. The incision was followed by free bleeding. The opening was dilated by means of a laryngeal applicator to insure complete drainage, and several scarifications were made into the edematous epiglottis and arytenoid region. In spite of emphatic protest and explanation of the danger of sudden suffocation, the patient assumed all responsibility, and walked to his home a few blocks from the hospital. The ichthyol-glycerin mixture was prescribed to be applied in the usual way, together with ice applications and active purgation. Fluid diet was also enjoined.

The following afternoon, April 23, 1913, the young man reappeared at the hospital, greeted me smilingly, stated that he felt much better, but objected to the taste of that black medicine. There was a decided improvement in the local process. The abscess-cavity was still draining, and the edema had diminished considerably. A good view of the larynx could now be obtained and showed no involvement. The ichthyol-glycerin treatment was continued at greater intervals, and the patient instructed to return for further observation. His temperature at this visit was normal.

Not having seen the case again I infer that his throat needed no further attention. The bacteriological examination showed a staphylococcus infection.

At my initial examination, I was surprised to find so little disturbance in this patient's breathing, in the presence of so much edema and swelling. This case seems to corroporate the statement of Gougenheim "that the respiratory difficulty is due to the immobility of the crico-arytenoid articulation, and not to aspiration of the swollen ary-epiglottic folds."

To emphasize the serious nature of acute infectious disease of the epiglottis and larynx, I have only to direct your attention to the four fatal cases mentioned by Theisen in his interesting paper, and to the five similar results in a series of fourteen cases which Semon[3] reports in his classic paper.

We must bear in mind that alarming symptoms appear suddenly but may subside in a few hours under active treatment. When local measures fail to bring about the desired results the question of tracheotomy arises. Moure states that in these cases intubation is a serious, difficult and dangerous operation, and that tracheotomy is the method of choice. Semon remarks that we must be very careful in adding further shock in these desperate cases. Seven of his patients operated upon by tracheotomy did not recover.

Some of the complications that have appeared during the course of septic infections of the upper air passages, are: pleurisy, pericarditis, endocarditis, pneumonia, peritonitis, and meningitis.

SUMMARY: Acute infectious epiglottiditis suddenly appears without warning. Its progress is rapid and its symptoms are characteristic. It is seldom seen in children.

Though the four cases herewith reported were primary manifestations, this disease may appear secondary to infective conditions of the teeth, tonsils, pharynx, or tongue.

The ichthyol-glycerin treatment has proved very beneficial following the surgical intervention. The stock or autogenous vaccines should be considered in the treatment of these cases.

That this is not a rare condition, is proved by the fact that my three last cases were seen within a period of five months in the same institution.

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58 East Seventy-fifth Street.

ON THE USE OF ELECTRO-MAGNETS IN THE EXTRACTION OF METALLIC BODIES FROM THE TRACHEA AND BRONCHI, WITH REPORT OF CASES.*

DR. SAMUEL IGLAUER, Cincinnati.

Electro-magnets have been employed in a very limited number of cases in the extraction of foreign bodies from the deeper air-passages. With the perfection of the bronchoscope the use of magnets has rightly fallen more and more into the background. It is the purpose of this paper to report two cases in which the magnet was tried, and to point out that there still remains a limited field in which magnets may be advantageously employed.

In the literature eleven cases are recorded in which extraction by electro-magnets was undertaken. Seven of these cases were successful and four resulted in failure. To this list should be added the brilliant case which Dr. Lynch[1] has reported to-day, and one success and one failure of my own.

Garel,[2] in February, 1901, reported the case of a child, 18 months old, in which a nail had been lodged in the right bronchus for two months. A radiogram showed the nail head-up. A high tracheotomy was made and while the incision was held open with retractors an eye magnet was placed in the opening of the air passage. The nail became dislodged and instantly attached itself to the magnet. The nail was 2¼ inches long (6 cm.) and the magnet had attracted it through a distance of from 5 to 6 cm. (The child recovered.)

Piechaud's[3] case was recorded during the same year as that of Garel. A nail had become lodged in the left bronchus of a child 3½ years of age, and had been *in situ* for about six weeks.

A metal sound, curved on the end, was introduced through a tracheotomy, and was guided into the bronchus. The proximal end of the rod was then brought in contact with an electro-magnet and the nail was thereby attracted to the distal end, and successfully removed.

Two years later, Lermoyez and Guisez[4] reported the case of a man 26 years of age who had inspirated a small carpet tack eight weeks before. A radiogram at first revealed the tack (1 cm. long, with a head ½ cm. in diameter) in one of the divisions of the right bronchus. After an unsuccessful bronchoscopic examination, the tack passed further down and subsequently lower bronchoscopy showed the tack 1 to 2 cm. from the orifice of a bronchus of the third order. A specially constructed electro-magnet was then introduced through the tracheotomy incision and the tack was removed at the first attempt. The whole procedure did not require five minutes. (Recovery.)

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*Read at the Eighteenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, Chattanooga, October 29, 1913.

In September, 1904, Hosmer[5] reported the removal of a shingle nail from the left bronhcus of a child. The nail which had been *in situ* for 13 days was extracted by an electro-magnet provided with a long tip which was introduced through a tracheal incision. (Recovery.)

Burk[6] records the case of a child who had inspirated an iron screw eleven days before. The screw was first located in the left main bronchus but extraction with a bronchoscope failed at the first attempt. A radiogram subsequent to this examination showed that the foreign body had lodged in a lateral bronchus, but lower bronchoscopy failed to reveal its presence. Thereupon an elongated electro-magnet was introduced through, and 2 cm. beyond the bronchoscope, and the screw was removed without difficulty. (Recovery.)

The case of Dr. P. H. Hickey[7] was a very unusual one. A child, 3 years old, inspirated a steel safety pin. The x-ray examination showed the pin in the trachea immediately below the larynx. Tracheotomy failed to expose the pin and the fluoroscope showed that it had passed downward until its lower end was in the right bronchus. "The child was placed under a giant magnet. the tip of the magnet being placed over the locality against the chest wall where the rays showed the pin was located. The giant magnet was then moved in the direction of the child's head and a slight cough showed that the pin was moving with the magnet. The tracheotomy tube was removed as the tip of the magnet approached the neck and the pin was pulled up through the trachetomy wound." Recovery. The pin had been in the bronchus for about thirty-six hours.

Martin[8] reported the case of a boy, 8 years old, in whose right bronchus a screw 1¼ inches long had been lodged for five months. Subsequent to the inspiration of the foreign body the patient had developed an abscess of the lung which had been drained through a resected rib, but the radiogram showed that the foreign body had not been removed during this operation. Under the guidance of the x-rays, a large forceps was passed through the external opening to the screw. A giant magnet was then brought into contact with the handle of the forceps and the screw was pulled out through the attraction of the magnet. Recovery.

In two unfortunate cases Massei[9] was unable to extract foreign bodies by the aid of an electro-magnet. In the first patient, aged 3 years, a glass-headed pin was lodged in a bronchus, and in the second case a nail had become impacted (forty days) in the right bronchus of a boy of 8 years.

An unsuccessful case was reported by Brokaw[10], and one by Hubbard.[11] In the latter case an upholster tack had become lodged in the left bronchus of a child of 9 years. Attempts at extraction with a magnet were unavailing as the foreign body was impacted.

Brokaw's experience was almost identical with that of Hubbard, but he later succeeded in withdrawing the foreign body with a forceps introduced through an endoscopic tube.

REPORT OF AUTHOR'S CASES.

The following case presents some very interesting and unusual features:

Case 1: The patient, S. R., male, aged 6 years, was first seen in consultation with Dr. F. Leever, on August 22, 1912. His parents stated that about three and a half years ago he was supposed to have swallowed a metal screw. The stools had been watched but the foreign body had not been found. No particular symptoms were noted at first, but after some time the child suffered frequently with croupy cough and was treated for bronchitis. In February, 1912, he went through a severe attack of pneumonia, lasting seven weeks. After the acute stage had passed he came under the care of Dr. Leever who found a consolidation of the lower lobe of the left lung. This failed to resolve during the next three months. During this period he had a very protracted cough with mucoid expectoration containing at times traces of blood, and accompanied by a septic, irregular fever, ranging from normal to 103°, 104° and became "reduced to a skeleton," (weight 37½ lbs.). In the course of his illness the child developed clubbed fingers and toes, as well as an inguinal hernia.

On June 8, 1912, he suddenly expectorated a large amount of foul-smelling pus, slightly streaked with blood. After this, expectoration became very profuse, as much as 30 ounces a day, and the child always had a pus-basin with him. Repeated examinations for tubercle bacilli were negative. After a time the general condition improved somewhat so that the child was able to walk.

The diagnosis of an unresolved pneumonia with abscess formation was made by Dr. Leever and Dr. Lamb. Accordingly, on August 22, 1912, a radiogram was made by Dr. Lange. This showed a consolidation of the left lower lobe of the lung, in which an abscess cavity containing a foreign body (a screw?) could be seen. It lay head-downward at the termination of the left bronchus, opposite the fourth rib anteriorly and the seventh rib posteriorly. (Figure 1.)

On August 24, 1912, under general anesthesia, (atropin hypodermically) upper bronchoscopy was undertaken. Owing to the dyspnea and profuse secretion this was soon abandoned. A tracheotomy was then made through which a bronchoscope was introduced into a large abscess cavity, at the termination of the left bronchus. A large amount of pus was pumped, mopped and coughed out through the tube, but the secretion was so profuse that after prolonged search the examination was discontinued and a tracheotomy tube was inserted.

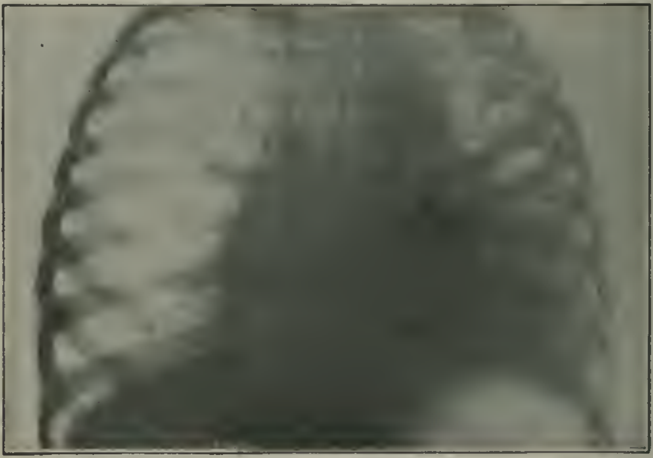

Figure 1. Radiogram showing an abscess of the left lung containing a metal screw, (retouched).

Following this unsuccessful bronchoscopy, the giant-magnet designed by Dr. Ranly[12] was procured. This magnet, with a lifting power of 6000 pounds is provided at one pole with a flexible extension in the shape of a heavy chain through which the magnetic force may be applied, where desired. (Figure 2.)

In addition to this, a tracing was taken from the x-ray plate, according to which a solid steel bar was patterned so that it would correspond to the line of the trachea and left bronchus. This rod was 9¼ inches long and ¼ inch in diameter and was flattened on the convex side so that it would not obstruct the right bronchus. (Figure 3.)

On August 29, 1912, under local anesthesia, (reinforced by atropin), lower bronchoscopy was again tried, but owing to the profuse secretion, again failed as before.

A steel tube was next passed through the bronchoscope into the abscess cavity and was then connected with the magnet, but this failed to draw out the foreign body. The bronchoscope was then removed and the solid steel bar, guided by touch, was passed through the trachea and left bronchus into the abscess cavity.

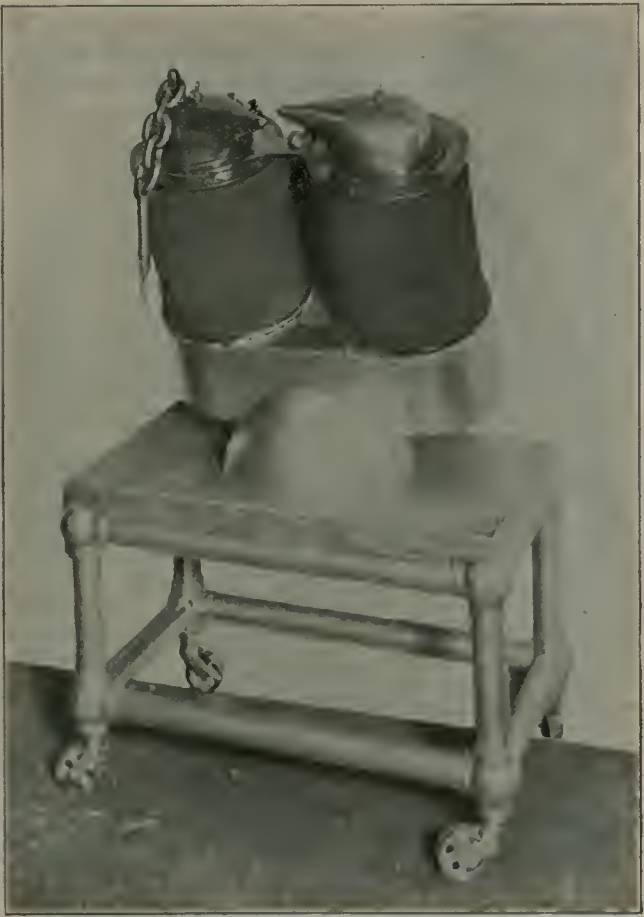

Figure 2. The giant-magnet of Dr. John Ranly.

The chain from the magnet was brought into contact with the bar and the current turned on. The operating table and patient were then slowly pulled away from the magnet and the steel emerged from the trachea with the screw dangling on the end. The screw was badly corroded and measured ¾ of an inch (2 cm.) in length. (Figure 4.)

Subsequent History: The tracheal canula was first left out, but it became necessary to re-introduce it the same night. It was worn for twenty-four days thereafter, since expectoration continued profuse, and could be readily expelled through the canula. Following the removal of the foreign body the patient gradually improved and gained in weight, while the expectoration diminished for several weeks, only to increase again after that.

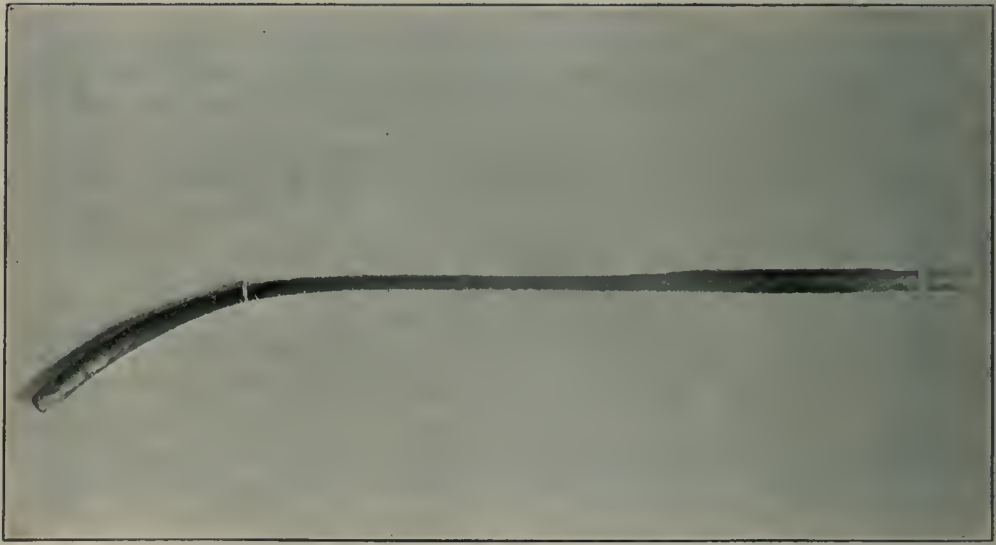

Figure 3. Steel rod which was magnetized and with which the screw was attracted and extracted.

Six months after the foreign body had been removed, the lung still remaining consolidated, (slight fever, profuse expectoration, etc.). It was decided to drain the abscess externally. This was done by Dr. Langdale. A second drainage operation became necessary three months later.

At the present time, the wound is still discharging somewhat; expectoration has almost ceased, and the patient has gained 15½ pounds in all.

Remarks: The unusual features of this case were the length of time the foreign body had been *in situ* and its accidental discovery by the x-ray after the diagnosis of abscess of the lung had been made. The ease with which magnetic extraction was accomplished after bronchoscopy had failed is also worthy of note.

Case 2: The following case is as interesting as Case 1. Miss D. J., aged, 19, was seen in consultation with Dr. Mithoefer on October 1, 1912. She stated that a few hours before she had put some pins in her mouth and had choked on one of them. Some one in the factory where she worked had attempted to extract the pin with her fingers, but to no avail. Laryngoscopic examination at first failed to show the pin. A radiogram was therefore taken by Dr. Lange, and this revealed the pin behind the epiglottis.

The laryngoscope then showed the foreign body in a vertical position immediately behind the epiglottis, with the head of the pin resting at the anterior commissure and the tip embedded loosely in the epiglottis. It seemed as if the pin might at any moment topple off into the trachea.

Upon request the patient produced a pin which she declared was identical with the one she had swallowed. This companion pin proved to be easily magnetized, and it was explained to the patient that we desired to extract the pin with a magnet, as I feared that the forceps might easily dislodge the foreign body.

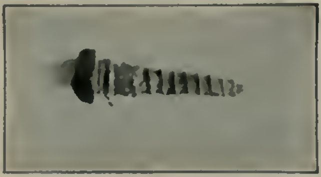

Figure 4. The foreign body, actual size, removed by magnetic attraction.

The patient was taken to the office of Dr. Ranly. The larynx was cocainized (by the drop method) and a curved steel bar was being magnetized by contact with the magnet. The first attempt failed and upon a second attempt the pin, much to our chagrin, became dislodged and disappeared.

A radiogram immediately thereafter showed the pin in a lower division of the left bronchus. The following day, assisted by Dr. Murphy and Dr. Mithoefer, I made a prolonged search for the pin by upper bronchoscopy, but it could not be found.

On October 4, 1912, Dr. Murphy and I took the patient to Pittsburg, to consult Dr. Chevalier Jackson, who considered it a very difficult case. He made a prolonged bronchoscopic search for the foreign body, but was unable to find it. A few days later he made a second unsuccessful search for the pin. On October 12, 1912, the patient developed pneumo-thorax. Dr. Hartley Anderson thereupon removed the pin from the lung through an external operation. The pin, after its removal, was tested with a magnet, *but could not be magnetized*. The patient recovered, and in a few weeks the lung had fully expanded.

Remarks: In this case extraction with a magnet seemed a perfectly rational procedure, but I was led astray by the companion pin which the patient presented. The failure in this case was as disappointing as was the satisfaction in the first case.

EXPERIMENTS ON ANIMALS.

In all the clinical cases heretofore recorded the magnet has been applied through a tracheotomy. De Roaldes,[13] in a series of experiments on the cadaver, was unable to guide an object from the trachea through the larynx into the mouth. He suggested the use of two magnets, one to be applied over the trachea and the other to be introduced into the mouth.

In some recent experiments, assisted by Dr. Ranly, I have undertaken the direct extraction of magnetizable bodies from the trachea and bronchi of dogs, by the attraction of magnetized steel rods, *introduced through the larynx,* into the deeper air-passages.

Four dogs were used, one of these was a dead animal and three were living, anesthetized animals. (One of the latter died after three experiments had been performed.)

The procedure was as follows: A foreign body, (nail, bolt, screw or needle) was introduced through a bronchoscope into the lower trachea or into a bronchus. The bronchoscope was then removed and a steel rod was passed through the larynx into the deeper air-passages. In order to attract the foreign body, the rod was then magnetized by contact with the electro-magnet.

At different times, fifteen objects were in this manner introduced through the larynx, while one was inserted through a tracheotomy. Of the fifteen foreign bodies, six were recovered *per vias naturales* and two through a tracheotomy. Since the rods were of smaller diameter than the trachea the animals were not asphyxiated when the rods were introduced. The foreign body introduced through the trachea could not be recovered. Of the total number of objects recovered, all but one were from live animals, and of the eight objects recovered, four had been in the bronchi, and four in the trachea.

Prota[14] records some similar experiments, all of which, however, were performed through the open trachea of the animals.

From the results of his experiments as well as from my own, the conclusion may be drawn that the metallic bodies must be free, or very loosely impacted in the trachea-bronchial tract if it is to be extracted by a magnet.

Jackson's[15] article contains a similar conclusion.

In exceptional instances, in human beings, it might be possible to combine suspension laryngoscopy and magnetic attraction by means of steel rods passed through the suspension laryngoscope, corresponding to the experiments on animals recorded above.

A review of the recorded clinical cases, as well as of my own. leads to the conclusion that in exceptional instances the electromagnet may prove of great value in the extraction of foreign bodies from the lungs. These cases would be limited to that group in which the foreign body was beyond the reach of a bronschoscope or was concealed in profuse secretions. The magnet may also attract the foreign body and thereby shorten the search when an external operation becomes necessary. In the vast majority of instances, however, the bronchoscope will remain the instrument of choice.

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22 West Seventh Street.

THE VIOLET RAY AND OZONE OF USE IN NOSE, THROAT AND EAR CONDITIONS.*

DR. KATE W. BALDWIN, Philadelphia.

So much is claimed for the violet ray and so much is said against it that I hesitate to bring its use before the members of the Academy. My excuse for so doing is that I am convinced that all who are not utilizing it for both treatment and diagnosis are neglecting a valuable aid. For diagnosis alone it is worth investigating by the specialist, the internist and the surgeon. It may help the internist and the surgeon to eliminate many supposed points of pain and to narrow to a small part of the anatomy the true focus of many widely disseminated symptoms. What is true for the surgeon and the internist is equally valuable for the nose, throat and ear specialist. It localizes pain almost to the exact point most involved. That which the patient describes as general frontal headache is localized in one or both frontal sinuses; or the sinus may be demonstrated free, and the pain traced to the exit or the supra-orbital nerves. Again, one nerve may be eliminated and the other found extremely sensitive to the rays. Usually some restricted area that is more acutely sensitive than any other is isolated.

The pain or soreness disappears with treatment from the periphery of the involved area first, and later from the actual pathological tissue involved. Having thus localized the area, the etiology —local, general, or both local and general—is more easily determined, and must be carefully searched for and, if possible, removed. Dislike of the violet ray is not frequent, but is very decided when it exists.

I do not wish to weary you with details of cases; so I will merely mention three that will indicate their general character and the scope of the treatment:

Case 1: The patient was Miss C., a teacher, who had for many years been subject to extremely severe right-temporal and frontal headaches, which were more frequent and more severe when the general system was overtaxed, and resulted in great exhaustion. The various headache remedies relieved the attacks but did not diminish their frequency or severity. Although the first use of the violet ray quickly cured one of her most severe seizures, so great was her dislike for it that she decided that she preferred to continue to rely upon the less prompt relief obtained from drugs. During the next six or eight months I saw her occasionally but gave no violet rays. Finally Miss C. reported that not for years had she experienced so few or such mild attacks of headache as since the use of the violet ray. "As every condition," she said, "has been the same since that time as before, the improvement must be due to that!" Her dislike for the violet-ray treatment was not less, but she wished to make further trial in order to see whether possibly her headaches might become wholly a past experience. The result was that, in spite of her aversion, each application of the ray was followed by a recognized feeling of comfort. Commencing over the cervical nerves, I gradually diminished the current, reaching the especially involved area with a very mild application and then gradually increased, until the point of easy tolerance was reached. After only four treatments, Miss C. left for her summer vacation. On September 1 she left this report: "The best ever! Do not at all mind that it is time for school."

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*Read at the Eighteenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, Chattanooga, Tenn., October 28, 1913.

Case 2: This patient was a boy of 10 years with chronic suppurative otitis media, probably from the time of erupting his first teeth. There was a large perforation of the lower anterior segment of the drum membrane, with much and frequent foul discharge. The adenoids had been removed without improving the aural condition. No further operation on nose or throat was indicated. After carefully cleansing and disinfecting, I used ozone, as generated by the violet-ray apparatus, directly in the ear. It passed freely through the Eustachian tube into the throat. I also gave it through the mouth and nose. In a surprisingly short time the discharge stopped and the perforation closed. An attack of measles interrupted the treatment; but, much to my surprise, there was no relighting of the aural infection.

Case 3: Dr. N., a dentist, came in one evening with a very uncomfortable sore throat; temperature and much general distress. The tonsils and lateral folds were well covered with a grayish-yellow exudate, suggestive of serious infection. After cleaning the area involved, the throat electrode was thoroughly used over all the exudate, and the surface electrode down the spine, especially the cervical region. Cutting off all appointments for the next day was advised, and an early morning report requested. The morning telephone message was a surprise, in that it reported entire relief from discomfort and absence of exudate in the throat Insisting upon personal judgment, I found no trace of exudate and no fever Nothing further developed.

The harsh, nervous cough, with or without an enlarged lingual tonsil, is usually greatly relieved. Enlargement of the thyroid gland diminishes and distressing symptoms are removed. Even broken-down tuberculous cervical glands respond in a satisfactory manner.

I am very anxious that a free discussion follow and that favorable or unfavorable reports be given.

This paper does not include the use of the therapeutic lamp with violet screen.

1117 Spruce Street.

Pole Ligation for Hyperthyroidism. PEARSON. *Dublin Jour. of Med. Sci.*, July, 1913.

A case of severe acute hyperthyroidism is reported in which pole ligation was performed with a very successful result. In reference to the technic stress is laid on the importance of including in the ligature veins, lymphatics, and nerve filaments as well as arteries. The operation is especially suited for (1) mild and early cases which fail to respond to medical treatment, yet which do not require the more serious operation of partial thyroidectomy; (2) acute severe cases especially in the presence of emaciation of cardiac dilation. In many of these it should be employed as a preliminary to excision which may be carried out subsequently, when the patient is in better condition, with much less risk. Excision on the other hand should be performed in cases with even mild thyrotoxic symptoms if the gland is much enlarged, and it is required after a time in many cases which have been treated by ligation because in the words of Hayo, "Most of the ligated cases will relapse within from one to three years, although their condition will not be so bad as before the ligation." GUTHRIE.

SKULL OF ABORIGINES. SPECIMEN OF TEMPORAL BONE.

Dr. Thomas J. Harris, New York City.

The specimen which I take the liberty of presenting was found in the collection of skulls of the Anatomical Institute of the University of Freiburg. It is marked a "boeroc," presumably an aborigines' skull from the South Sea Islands. The rational explanation of its character is the one usually given for all these conditions, namely, an extensive cholesteatomatous disease. When I first saw the specimen I was under the impression that it was unique, but have later learned on consulting the literature that such is not the case.

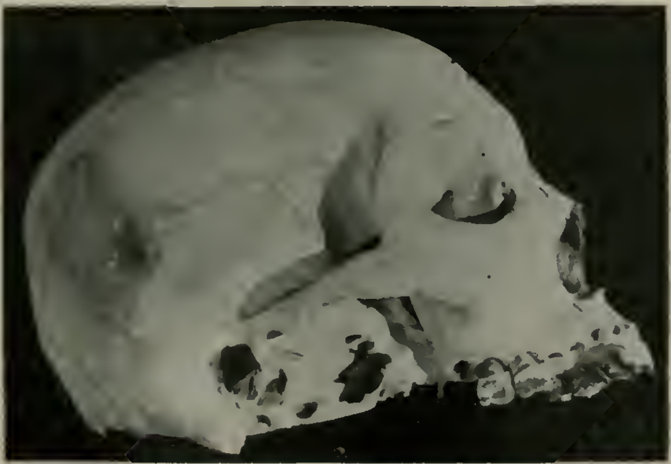


Figure 1.

The specimen, which was the right temporal bone, represents two cavities originally separated by a complete bridge 1 mm. wide, which was broken in the removal. It will be noted that the mastoid process is preserved below. Above the cavity extends to the zygoma. The anterior opening shows almost complete absence of the posterior wall of the glenoid cavity. Posteriorly, one immense cavity is seen representing the entire antrum and mastoid cells and extending upward as far as the tegmen antri and the tegmen tympani, the latter of which contains a defect of 4 mm. in the vertical diameter, by 3 mm. in the horizontal. No vestige remains of the posterior wall of the canal. The inner wall shows clearly the facial canal and the fenestrae ovale and rotunda, the promontory and the opening of the Eustachian tube. The left temporal bone, which was not removed, showed a similiar bridge 1 mm. wide. The mastoid antrum did not appear to be opened. There were two large defects in the tegmen tympani and here also the facial canal, the fenestrum rotundum and the fenestrum ovale were plainly to be seen, as well as the opening of the Eustachian tube. Both cavities are smoothly rounded out, as if with a burr.

The exact measurements are as follows: The right side, the posterior cavity 1.6 cm. vertically, 1.2 cm. horizontally, 2.2 cm. deep. The anterior cavity, 1.3 cm. vertically, 1 cm. horizontally; the depth of the two cavities in the intero-posterior diameter, 3.2 cm. The left temporal bone, the posterior cavity, 1.6 cm. vertically 1.2 cm. horizontally, 2 cm. deep. The anterior, 1.2 cm. vertically, 1.2 cm. horizontally, depth of the antero-posterior of the two cavities, 2 cm.

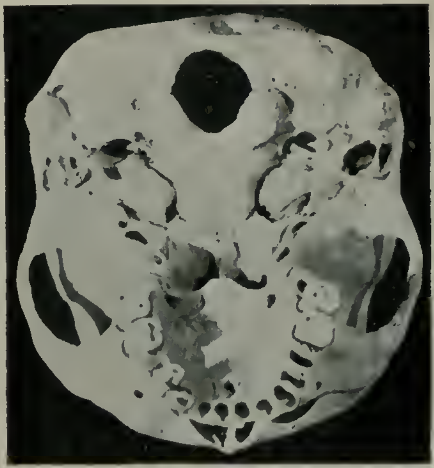


Figure 2.

My thanks are due to the Director of the Anatomical Institute of the University of Freiburg for the privilege of presenting this specimen.

101 East 40th Street.

BRAIN EXPLORER AND TWO MODIFICATIONS OF ALLPORT'S SPECULUM.

DR. HAROLD GIFFORD, Omaha.

The brain explorer is meant to supply a want which I have long felt when operating for brain abscess. The uncertainty which attends the attempt to open an abscess with a knife or aspirating needle when no flow of pus follows the introduction of the instrument has led to the practice of following this by the introduction of a pair of forceps more or less in the track of the original puncture in the hope of opening a wide enough passage for thick pus to escape. This procedure, while sometimes successful, is so brutal that it does not appeal to the average operator except as a last resort. The brain explorer is a pair of knives which can be introduced as one blade, as far as the operator thinks necessary, and then spread as little or as much as may be desired. If no pus follows they can be pushed in farther and the separation again tried; thus proceeding to as great a depth as may be thought justifiable, with the certainty that no abscess which has been pierced by the points will be concealed by the closing in of the tissues.

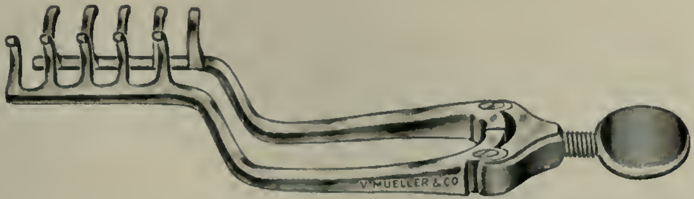


Figure 1. Allport-Jansen mastoid retractor with off-set branches and somewhat slightly sharpened points.

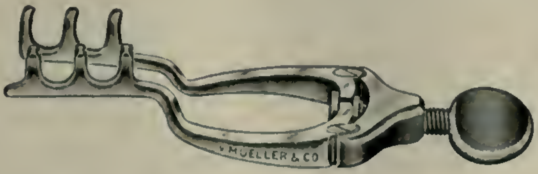


Figure 2. Retractor for tying the jugular.

The smaller of the speculums is a slight modification of the Allport speculum as modified by Jansen; the change consisting in setting the branches off a quarter of an inch from the main plane of the instrument and slightly sharpening the points of the teeth. This gives the instrument a hold which is desirable in swollen tissues.

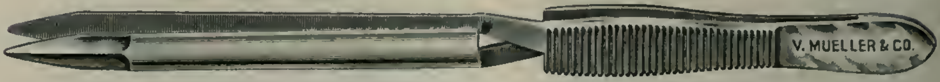


Figure 3. Brain explorer. The figure shows the points blunter than they really are.

The other speculum is for use in tying the jugular and will, I think, commend itself to any otologists who have done this operation themselves. The instruments are made by V. Mueller and Co., 1775 Ogden Avenue, Chicago.

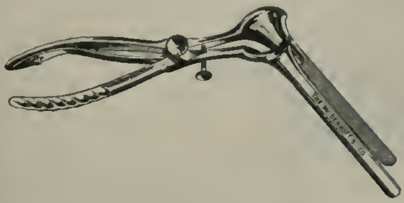
567 Brandies Building.

INSTRUMENT FOR SEPARATING THE VOCAL CORDS AND OPENING THE MOUTH OF THE ESOPHAGUS.*

Dr. R. C. Lynch, New Orleans.

This is adopted from the long nasal speculum of Killian. The blades separate 1¾ inches at the top, are nine inches long, and the screw will retain the blades in the required position.

I use it for separating the vocal cords while the patient is suspended on the Killian-Albrecht apparatus. With it I can see into the trachea without a tube, can determine the location and extent of attachment of sub-glottic and tracheal tumors, can use a mirror for examining the under-surface of the vocal cords and the walls of the trachea, remove foreign bodies attached to the vocal cords, or floating free in the trachea.



A peanut in the trachea of a child, 14 months old, was very nicely removed this way. The instrument can be used for looking into the mouth of the esophagus and thus facilitate the location of webs, tumors, foreign bodies high up, and strictures in this region.

624 Gravier Street.

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*Presented at the Eighteenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, Chattanooga, Tenn., October, 1913.

LA FORCE HEMOSTAT TONSILLECTOME.*

Dr. B. D. La Force, Ottumwa, Iowa.

At a meeting of the Academy of Ophthalomology and Oto-Laryngology I made a preliminary report of an instrument devised for the bloodless enucleation of the faucial tonsil back of its capsule.

Before the instrument was presented and the preliminary report made, Dr. Joseph Beck of Chicago, who has helped very materially to work out the technic of the operation, and I applied the hemostat and ligature to the faucial tonsil back of the capsule and a complete enucleation was done without the loss of a single drop of blood.

The operation of applying the hemostat back of the capsule, crushing the tissues for seven minutes, and enucleating the tonsil in the adult as well as in children was done with the loss of only enough blood to tinge the mucus.

From my experience with the instrument before the report was made and since that time, and from my observation of the instrument in the hands of several noted laryngologists, including the very skillful preliminary work done by Dr. Beck, I feel justified in making the statement that I am convinced this instrument will be of decided usefulness.

The instrument is provided with a hemostat which has two crushing-surfaces something similar to the blades of an artery forceps, which are about two and one-half mm. broad, a ligature carrier, a cutting-blade and an opening made almost square, in which the tonsil is engaged.

The tonsil is engaged into the fenestra of the instrument after the method of Dr. Sluder, the crushing-blade forced down back of the tonsil and all of the tissues immediately in apposition to the tonsil held firmly between the two crushing surfaces by screwing down the wheel attached to the crusher. The hemostat is allowed to remain in place from five to ten minutes; the time should be determined accurately by the watch.

If the ligation is to be done, the ligature is placed in the groove over the end of the ligature-carrier with the ligature held firmly against the end of the carrier by engaging the ligature, after being tightly drawn, into a small spring catch. The ligature-carrier is then pushed forward through the pedicle produced by the hemostat, the ligature released from the spring catch and the ligature-carrier brought back leaving the loop on the farther side of the pedicle. The loop is then caught with forceps and brought around the handle-end of the instrument, one end of the ligature passed into the loop and the ligation of the pedicle completed by tying it either with or without a ligature knot tier made for this purpose..

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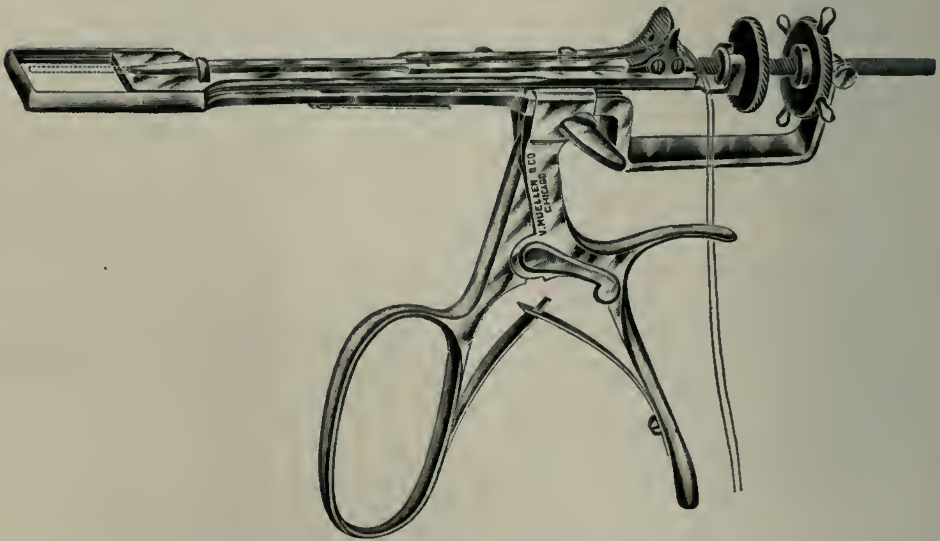
*Presented at the Meeting of the American Academy of Ophthalmology and Oto-Laryngology, Chattanooga, Tenn., October, 1913.

The ligation has also been accomplished by looping a number one snare wire over the ligature-carrier and running the loop of wire through the pedicle. If it is to be tied in three sections, the ligature carrier is displaced as far as it will go upward, and having penetrated the pedicle in this location, the carrier is withdrawn, leaving the wire loop in place where it is to be grasped with forceps, the loop threaded with a ligature thirty-six inches long and brought through the pedicle from behind forward by retracting the wires. The ligature is then cut in such a way that the upper third of the pedicle may be tied.



The part of the ligature which is left through the pedicle we will call ligature number two, which we will say has ends A and B. We next put the ligature carrier as far down as it will go, put wire-loop over it as before, pierce the pedicle and put the end of the ligature that was left after ligature number one was made, taking the end that was through the pedicle we have called B, and pass it into the loop of wire. Then retract the wire, cut the loop and tie the middle third of pedicle and then tie the lower third of pedicle by tying the other two ends.

At this time one end of ligature number one is tied to one of the ends of ligature number two, and the other end of ligature number two tied to one of the ends of ligature number three, so that there will be no gaping of the stump when the tonsil is cut off and hemostat released.

After the hemostat has been applied for from five to ten minutes or after the ligation has been accomplished, the smaller wheel is turned to the right and the tonsil cut off, being held with forceps and removed. The larger wheel is then turned to the right, the catch on the hemostat released so that the instrument may be removed from the throat.

Congenital Occlusions of the Esophagus and Lesser Bowel.

EDINGTON. *Glasgow Med. Jour.*, July, 1913.

Two specimens are described which illustrate a malformation of the tracheo-esophageal septum. In both of them the upper segment of the esophagus ended as a blind sac attached to the trachea below the level of the larynx. A free communication existed between the lower segment and the trachea close above the bifurcation of the latter, and the upper and lower segments were not united by connecting bands. Both fetuses presented other malformations, one of them, transposition of the thoracic and abdominal viscera, septal occlusion of the duodenum, and atresia ant; the other, various abnormalities of the recto-vesical region.

Reference to the literature of the subject shows that both specimens were examples of the prevailing type of esophageal malformation. Discussing the etiology the author regards it as probable that the malformation is due to an abnormal relationship of the tracheo-esophageal ridges (which separate trachea-esophagus) to the posterior wall of the esophagus, the ridges becoming fused with the latter over a greater or lesser area. GUTHRIE.

NEW YORK ACADEMY OF MEDICINE.*

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Report of Retiring Secretary.

Mr Chairman and Members of the Section: Your Secretary has the honor to present the following report for the year, 1913:

STATISTICAL:

Total enrollment	167
Number of meetings	9
Average attendance	65
Number of papers read	14
Number of patients presented	35
Number of specimens exhibited	5
Number of instruments demonstrated	5
Number of cases reported	11
Number of reports other than cases	4
Total number joining in discussions	228

The year which is officially ended with this meeting has been noteworthy in several respects.

There have been but two resignations and one death, that of Charles Huntoon Knight, M. D.

While we have added sixteen fellows to our enrollment, our total, when compared with that of last year, represents a loss of two members. Aside from the resignations and death above noted, this apparent discrepancy is accounted for by the removal of errors which had crept into permanency, year after year, under the old system of enrollment.

Correspondence with other Secretaries of Sections brought about united action, resulting in a change. Secretaries are now notified, by mail, of additions, affecting the enrollment of any particular section.

The average attendance has been unusually good and the interest in the scientific discussions sustained and satisfactory. During the year, the following guests have also addressed us, from time to time: Charles E. White, President New England Conservatory of Music; Dr. Harris Taylor, Principal of the New York Institute for the Improved Instruction of Deaf Mutes; Miss Helen Keller (5 min.); Dr. Otto Joachim, New Orleans; Dr. Chevalier Jackson,

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*Published in The Laryngoscope by Order of the Section.

Pittsburgh; Dr. E. B. Gleason, Dr. H. M. Goddard, Dr. Ross Skillern and Dr. Geo. H. Coates, all of Philadelphia; Dr. Clinton Wagner, founder of the Society, retired and now resident in London, England; Dr. Bert Munday, New York; Dr. Cyril Barnert, New York; Dr. Henry L. Swain, New Haven; Dr. James C. Callison, New York.

Our position or opinion has been sought on two matters of public interest and importance: (a) the pending legislation for the further restriction of the possession, use and sale of cocain and eucain and their salts. The so-called "Walker Bill" or Assembly Bill, 692, as it was then designated. (b) Our attitude toward those of our public school children who become afflicted with hypertrophied tonsils and adenoids, and the requisite provisions which dispensaries should maintain for the proper treatment and care of such applicants.

In respect to each and both of these problems, this Society, acting as such or through its officers or special committees, took a dignified and compelling position. Under the provisions of "The Walker Bill," the opponents of the unlawful traffic in these drugs, lead by Judge Swan and Asst. Dist. Att. Delahanty, sought to enact a drastic and far-reaching law, entirely oblivious to our rights and time-honored privileges and privacy. Against such legislation we protested with insistence and the whole force of our established position, yet with a deep and abiding sense of our duty to the public in the presence of this menace to the home and the individual. It is gratifying to state, that our suggestions and recommendations received the serious attention which they deserved and have since become part of the law of the state.

In regard to the second question, a reply was drawn up and forwarded to the Associated Out-Patient Clinics of the City of New York, having its basis on the written replies to the circular letter, embodying these queries, issued to members by your Secretary. This letter created a deep impression upon the Executive Committee of that Association, and copies were made and distributed to each institution in the membership, for its further information and future guidance.

We have signalized the closing months of the year with two events of cardinal, intrinsic importance: On November 6, we arranged and successfully carried out our annual meeting before this Academy. Again, on November 25, we made history, unique in the life of this Academy and the laryngological world, when we celebrated the Fortieth Anniversary of the foundation of this Section, originally the New York Laryngological Society, with fitting and impressive exercises. Since the event your Secretary has been the recipient of many messages of graceful acknowledgement of the invitation, addressed by us to laryngologists of recognized standing and representative ability in this country and many distant lands, all of which have been very appreciative of our position, as the oldest laryngological society in these or foreign parts. Doubtless the occasion would have passed without recognition, had it not been for the enthusiasm and untiring efforts of our distinguished member, David Bryson Delavan, who stimulated and entertained us with his comprehensive and historical address and presented this Section with the handsome bronze tablet, commemorative of the event, which now occupies a place on the walls of this Academy. The occasion was made doubly interesting by the presence of the founder, Clinton Wagner, M. D., who delivered a masterly address, outlining the early life of this Society.

The retrospect of our year, 1913, therefore, bears ample witness to our industry and activity as an organization.

Respectfully submitted,

Cornelius Doremus Van Wagenen, M. D., Secretary.
William Wesley Carter, M. D., Chairman

Suspension Laryngoscopy. W. Freudenthal, *Med. Rec.*, Feb. 22, 1913.

The author gives his personal experiences with this modern method of direct inspection of the larynx and considers it a valuable contribution to our laryngeal technic. There are several advantages connected with the method. (1) We see parts which could not be seen otherwise. (2) Other parts, as neoplasms, assume a different aspect. (3) It is easier for the patient and for the physician to operate in this way. By this technic the anterior wall of the larynx can readily be seen and the diseased area treated. Ulcerations can be more thoroughly curetted than before. The paper is illustrated and the histories of the cases are detailed.

Lederman.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Commemoration exercises and presentation of tablets,
November 25, 1913.

WILLIAM W. CARTER, CHAIRMAN.

Introduction of Dr. Wagner. DR. WILLIAM WESLEY CARTER.

It affords me great pleasure to congratulate you on this auspicious occasion, and to welcome you to the Academy. It is with a feeling of keen appreciation mingled with a sense of my own unworthiness that I assume the duties of Chairman at this, the Fortieth Anniversary of the oldest Laryngological Society in the world. This occasion marks an epoch in laryngology; it has no precedent in the history of our specialty. It belongs to us, therefore, with strong propriety to celebrate this day.

We meet, not of necessity, nor for the purpose of applauding our own work, but we meet that we may pay a well deserved tribute to those pioneers through whose earnest, courageous efforts laryngology has been raised from its cradle of unpopularity to its present enviable position of distinction and efficiency.

The work of a pioneer is hard, and must be accomplished in a spirit of unselfishness, for he is wise enough to realize that the span of one life is too short to bring his enterprise to its mature and perfect issue; and he knows full well that the sweetest fruits of his labors are to be enjoyed by those who come after him.

Of that great company of pioneers, a distinguished representative is with us to-night, Dr. Clinton Wagner. Dr. Wagner graduated in medicine about the time that the Civil war began. He became a member of the Medical Corps of the U. S. Army. The unparalleled opportunities afforded by this association gave him a position of first rank among the surgeons of that day.

Following the war he went abroad and devoted himself to the study of laryngology. While in Vienna he made the acquaintance of several young Americans who were also interested in the new specialty. When he returned to America, he established a clinic in New York City, the success of which was so great that several public-spirited men furnished the means for providing a home for it. This was the beginning of the Metropolitan Throat Hospital, and through the work in this institution he was inspired to organize the New York Laryngological Society. This was in 1873, and it is the great event which we celebrate to-night, and this is the man to whom we are indebted for launching this Society upon its career of usefulness. Upon him all of our felicitations are focussed.

I rejoice to make way for Dr. Clinton Wagner, founder of the New York Laryngological Society.

ADDRESS. DR. CLINTON WAGNER.

This celebration of the fortieth anniversary of the founding of the New York Laryngological Society was conceived by my friend, Dr. Delavan, your former chairman, who for many years has been a most indefatigable worker in developing and uplifting the specialty of laryngology and rhinology; now he has rescued from oblivion the almost forgotten New York Laryngological Society and has placed its name on record in enduring bronze. I have been requested, as one of the early laryngologists in New York to speak of the work accomplished by them.

Forty years ago, the number of men in this city who were familiar with the then modern methods of examining the throat and nose could be easily counted. Most of us had received practical or clinical instruction in London, Berlin, Vienna, or Paris, but, notwithstanding, our knowledge of the diseases of the nose and throat was very limited. We could be compared, perhaps, to young men fresh from the colleges and hospitals. with minds stored with the ideas of other men in the matter of the treatment of diseases but with no fixed views, such as one acquires from practical and personal experience when called upon to think and act for one's self. In other words, our knowledge of the throat and nose bad taken no concrete form, for we had no blazed trail to follow through the intricacies of this department of medical science.

We met one evening at my house, in October, 1873, and decided to organize a society, not only for mutual improvement and the advancement and enlargement of our limited knowledge of the diseases of the throat and nose, but we had also in view establishing on a solid footing with the medical profession at large the specialty of laryngology and rhinology in this country, for the reason that many of the physicians of the time looked askance upon all specialties. The general practitioners in medicine and surgery were jealous of interlopers; the probang and gargles were their sole reliance for all cases of sore throat. The nose was ignored.

The aurist, who preceded us, had had his troubles in obtaining recognition; in fact the physician who undertook to cure chronic deafness was regarded as a charlatan. A surgeon in one of London's largest and best known hospitals, but a short time prior to the date to which I have referred, coming to the subject of the ear during his course of lectures, dismissed it curtly by asserting that there were but two classes of ear trouble, or deafness, those that could be cured with the syringe and those that could not, and for the latter nothing could be done.

All of us who met on that evening in October were connected with clinics for the diseases of the throat. At subsequent meetings we sent cases of special or unusual interest, which were examined and discussed by those present, all of whom were young, hard-working, ambitious, and determined to make successful careers during the coming years in this the largest city in America and destined to become the largest city in the world. Not all of them continued to follow the specialty; those that did, succeeded to the full measure of their expectations and always stood first among laryngologists; they were George Morewood Lefferts, Francke Huntington Bosworth, Morris J. Asch, Woolsey Johnson, and Norman D. Bridge. The two latter died young. Others, such as Charles McBurney, Robert Fulton Wier, Matthew D. Mann, and Francis P. Kinnicutt sought broader fields, but all became well known.

Many young men came to our clinics for instruction. I had patients from various parts of this country and Canada, but from the Potomac river to the Rio Grande there was absolutely no one to whom I could refer patients for further treatment at their home-towns or cities. However, the specialty became popular, not only with the laity but also with the profession which at first had given it the cold shoulder, when it was learned many ailments of the throat could be relieved by physicians familiar with the more modern methods of treatment. As an evidence of the rapid growth and popularity of the specialty,—within less than five years after the organization of this Society it was deemed desirable to have a national society, and the American Laryngological Society was organized at Buffalo, with a membership at that time limited to fifty but, later, increased. In the nineties, a sister society was organized, the American Laryngological, Rhinological and Otological, with a large membership roll.

During the two years that I spent abroad acquiring a knowledge of the specialty the treatment of nasal troubles was practically ignored; of course, polypi, foreign bodies, and tumors were recognized and removed, but there was no systematic instruction given for nasal troubles, as there was for the larynx and pharynx. The prevalence of chronic rhinitis, or so-called nasal catarrh, stimulated research into the hidden labyrinths of the nose, and in this branch of the specialty we went rapidly ahead of our confreres on the other side of the Atlantic.

Dr. Horace Green, whom the profession in our country to-day appreciates and honors, was the first throat specialist in America, and the *first in the world* to demonstrate that an instrument could be introduced into the larynx through the rima glottidis into the trachea, and as far as the bifurcation of the bronchi. For the local treatment of the larynx he used a sponge probang charged with a strong solution of nitrate of silver, and by means of a catheter introduced solutions into the bronchi for the relief or cure of certain pathological conditions. His work on "Polypi of the larynx and edema of the glottis," showed that he was far in advance of the age in which he lived; he not only diagnosticated the presence of laryngeal growths, but successfully relieved them by means of laryngo-tracheotomy. If the laryngoscope had not been discovered as an aid to diagnosis there would nevertheless be to-day throat specialists following the methods and teachings of Dr. Horace Green.

I have endeavored thus briefly to set forth the good work accomplished by the early laryngologists in establishing the first laryngological society in the world; "they builded better than they knew," and as a tree is known by its fruit, so will the work of these pioneers be appreciated and understood when we look upon the scientific work now being done by the Section on Laryngology and Rhinology of the New York Academy of Medicine.

DISCUSSION.

DR. CARTER: After listening to this masterly review of our early history I feel quite sure that we can appreciate more fully the meaning of Lowell's words, when he said "The past is a good nurse."

Certainly Dr. Wagner's remarks should make us realize that the main object after all is the promotion of the science and art of our specialty.

Introduction of Dr. Delavan. DR. CARTER.

The next speaker of the evening is so well known to this audience that a formal introduction is unnecessary to insure him an enthusiastic greeting.

But aside from this feeling of personal satisfaction at having him with us tonight, we are filled with delightful anticipations awakened by his subject, inspired as it is by the highest of professional ideals; the desire to keep alive in us an interest in the great men of the past, to give to the Society the credit that it deserves, and to perpetuate in lasting bronze its noble origin. May we always have such a friend and know his value.

Larngology in New York. DR. D. BRYSON DELAVAN.

We have met to commemorate the fortieth anniversary of the New York Laryngological Society, the first society of laryngology ever established in this country or in the world. We are also accorded the great privilege of offering our tribute of honor and appreciation to its modest but far-sighted and public-spirited founder, Dr. Clinton Wagner, the guest of the evening, and to those associated with him in the Society's primal organization. It is well that we, as men loyal to the medical profession of the country and justly proud of the city in which we live, should fearlessly claim for New York the credit for intellectual and scientific eminence which through many generations its physicians havē so richly deserved, and that we should at this time recount the story of what New York has done for laryngology, and study the exploits of the men who have contributed in so many wonderful ways to its fame.

Long before the invention of the laryngoscope it was in the City of New York that attention was first seriously turned to the special study of diseases of the throat; here that the most important principle connected with the physiology of the throat was first discovered; here that the possibilities of the topical treatment of the larynx were first demonstrated, developed, and perfected; here that intra-laryngeal surgery had its birth; the first public throat clinic in America,—perhaps in the world,—was established here; here the causes of nasal obstruction were first understood and successfully treated, and the way thus opened for the recognition and treatment of sinus disease; here that Koller, abandoning Europe, taught the value of local anesthesia and gave us cocain; here the first post-graduate schools were established, important features of which were well organized and equipped departments for instruction in laryngology; here it was that French perfected photography of the larynx, here Edison invented the phonograph, and here, again, in the city of New York, was founded the first Society of Laryngology in the world.

The founding of the society was the culmination of more than a century of earnest groping for the light; and while the progress was tedious and slow there was a constant advancement of which this was the successful, the triumphant issue. It was not until the latter part of the first half of the nineteenth century that the subject began to receive considerable and increasing attention. In 1846, Horace Green presented his "Treatise on bronchitis," the result of work begun by him in 1838.

In this extraordinary thesis he first described what he called "Catheterization of the larynx." Under this unpretending title he announced the great discovery that a foreign body could be introduced into the larynx and even below the vocal cords without producing suffocation. For this all-important discovery credit is beyond question due to Green. The worth of his suggestion as to the value of local applications to the larynx in general and, in particular, of nitrate of silver is proved by the fact that in the Vienna clinics and elsewhere silver was the main reliance for more than a generation, and as added confirmation is the fact that argyrol is to-day one of our most popular remedies. Green's publications covered a much wider field than we have alluded to and were destined to produce a revolution in the treatment of laryngeal disease and to open the way for new methods, both medical and surgical, which have constantly increased in number and value from that time to the present day.

To the name of Horace Green must be added that of another citizen of New York, Dr. Gurden Buck, who, in 1848, published a series of classical papers upon "Edema ot the larynx," in which he taught the diagnosis of these cases by palpation, and devised a special knife which, safely guarded by the forefinger of the examiner, could be passed into the larynx and applied with successful effect.

In 1858, the dawn ushered in by Horace Green was made brilliant daylight by Manuel Garcia's invention of the laryngoscope and the way was prepared for the establishing of the specialty upon a definite and firm basis. Here, again, New York took the lead, at least in this hemisphere, for it was the distinguished Dr. Krackowitzer, surgeon to the New York Hospital, who first in this country procured a laryngoscope from Vienna and with it, in 1858, demonstrated the vocal cords.

Following the announcement of Garcia's invention and Czermak and Tuerck's appreciation of it, a clinic was established in Vienna by Tuerck to which many students resorted for instruction in the new art. This was followed by other clinics in Vienna and in Paris, and later in London and Berlin, the most noted of which were under the direction of Tobold of Berlin, von Schroetter of Vienna, Mackenzie of London, and Fauvel and Krishaber of Paris. The progressive young Americans were not slow to take advantages of these opportunities, for in that day, contrary to what is now the case, if laryngology was to be learned at all it was necessary to go abroad to study it. Among those early students were our founders.

But the success of their effort in establishing this Society was not confined to New York. Five years after the organization of the New York Society, able laryngologists were to be found in most of the principal cities of the Northern States. So great was the increase that, following Dr. Wagner's original intention in 1878, the American Laryngological Association was founded. Meanwhile, the British Laryngological Association was founded by Sir Morell Mackenzie in 1888, ten years after the American Laryngological Association, and not until fifteen years after the Laryngological Society of New York. The national associations of France and Belgium were begun in 1890, that of Italy in 1892, and of Holland, in 1893,—Scandinavia, Russia, Germany, Austria, and Spain not being at that time represented.

The men who entered the department of laryngology in those early days were of the highest type. Not a few of them had seen service in the Civil war, either as members of the medical corps or in some other branch of the service. Chief among them was Dr. Wagner, whose war-record is an eloquent tribute to the courage and efficiency of the man. Entering the medical corps in 1860, he served with distinction until the close of the conflict. He established numerous hospitals, among them, the first floating hospital on western waters. He was Surgeon in Chief of the Regular (or Second) Division of the Fifth Corps of the Army of the Potomac. At the battle of Gettysburg, his hospital was the one nearest to the firing line and, in the desperate attempt of the Confederates to retake Little Round Top, was in the midst of such a hot fire of shot and shell that it became necessary to abandon it for a less exposed position. As the outgrowth of his opportunities during those stirring years Dr. Wagner had a rich surgical experience before he was 25.

Dr. Asch also saw service as an army surgeon. Dr. Rufus Pratt Lincoln enlisted when a Junior at Amherst College, entering as Second Lieutenant and rising rapidly to the colonelcy of the Thirty-Seventh Regiment Massachusetts Volunteers, and having been severely wounded in several important battles was mustered out near the close of the war with the rank of Brevet Brigadier General.

I call attention to this phase of the life of the time because by reason of it extraordinary opportunities were given for the development of strong traits of character and, in the medical service, for unlimited opportunity in medical as well as surgical work. The men who entered laryngology, moreover, were generally of good position and excellent education, possessed of fine intelligence, and able to afford the means for securing the best special training. They realized the value of the new specialty as a field for scientific investigation and for practical work. Of highly trained power of observation, untiring clinicians, and *diligent readers*, they relied upon the experience gained by such means rather than upon the not always infallible findings of the laboratory. They were also enthusiastic teachers. No wonder that their pupils were inspired with a little of the leaven which they so freely gave.

As before stated, rhinology was unknown in the early seventies. Attempts were made to treat naso-pharyngeal catarrh, but beyond that and the surgical treatment of polyps and growths, and the control of epistaxis, little was done. Nasal obstruction was not understood, and the causes leading to it were practically unrecognized, although Catlin in a very interesting work had called attention to "mouth-breathing" in 1853, and Clinton Wagner had presented an admirable thesis on the same subject, as related to medicine, in 1881. Nasal affections in general were grouped under the head of "nasal catarrh, or chronic rhinitis." The surgery of the septum and of the turbinated bodies did not exist. The nasal sinuses, except anatomically, were unknown.

Dr. William Chapman Jarvis, a member of the New York Society, was the first who recognized and directed attention to the importance of nasal obstruction due to undue swelling, or to chronic hypertrophy, of the nasal bodies, and he devised that most ingenious of all instruments for correcting the difficulty, the so-called Jarvis snare. Bosworth recognized the part played in nasal obstruction by nasal spurs, and was the first to advocate their removal by means of the saw. Another member of the New York Society, James H. Goodwillie, substituted for Bosworth's saw the dental engine for the carrying of trephines and burrs; and still another member, Asch, recognized the inadequacy of the efforts made by Adams and others to repair deficiencies of the nasal septum and gave us the first practical method for their relief; this method, with its modifications, still holds a position of much usefulness, in spite of newer and less conservative measures.

Dr. Louis Sass made many contributions to the armamentarium of our specialty, notahly his modification of the spray atomizer, which superbang and revolutionized the method of making applications to the throat.

Finally, we have within New York State, Dr. John O. Roe, whose wonderful originality, ingenuity and technical skill in repairing nasal deformities in general have caused him to outrank all others, either in this seded the use of the laryngeal brush, as the brush had superseded the procountry or abroad. Lincoln also did notable nasal work, especially in the treatment of naso-pharyngeal fibroma. He was the first president of the new section after the merging of the New York Laryngological Society with the New York Academy of Medicine.

One of the most interesting inventions that laryngology has produced was made by our distinguished colleague from Brooklyn, Dr. Thomas Rushmore French. Lennox Browne of London had succeeded in photographing by time-exposure the larynx of a singer who could demonstrate his own remarkably tolerant throat. Dr. French devised a special camera by means of which any larynx or upper pharynx that could be demonstrated at all could be photographed by an instantaneous process. Thus a new and effective method was provided for the study of the upper air passages, and many new facts were developed upon the subject of the physiology of the parts and of tho production of the voice. Indeed, with the advent of French's camera and Edison's phonograph, New York placed the study of voice production for the first time upon a genuinely scientific basis. French has also devised an adjustable table for securing the upright position of the patient in the removal of adenoids and other operations upon the throat and head. This chair, which has been perfected within the last year, is the most admirable device of its kind that has yet been invented.

Joseph J. O'Dwyer, of New York, a man of lofty character and far-seeing intelligence, devised the method of intubation for the relief of laryngeal obstruction in diphtheria, one of the most remarkable exploits in the history of surgery, and which was recognized by him as being applicable in many other and widely different conditions of laryngeal disease and injury. In addition to diphtheria, he applied it to obstruction of the larynx due to acute diseases, to injuries and lacerations of the soft parts, and to fractures of the laryngeal cartilages. He also employed it with success in the treatment of cicatricial contractures of the larynx, and his methods in this class of laryngeal deformity, elaborated by the modifications of Dr. John Rogers, of New York, have proved far superior to any that preceded them or to those of European device which have been offered to us of late years.

In the literature of laryngology, New York has always occupied a prominent place. Following the introduction of the laryngoscope, a number of works appeared in Europe which were of greater or less value. It remained for three English-speaking authors to present complete treatises upon the subject of laryngology and rhinology. These were J. Solis-Cohen of Philadelphia, Sir Morell Mackenzie of London, and Francke H. Bosworth of New York. These thoroughly comprehensive works exerted a final influence in the establishing of the specialty throughout the world, that has never been equalled. Among the other writers of the day, Beverley Robinson, Elsberg, Wagner and Lefferts were eminent. All of the leading men of the time were doing excellent original work and freely recording their results. What they accomplished would have been worthy of all credit had it ended with them. But through us who came under its influence and through those who in turn have been our pupils, we may hope that it will live and flourish for many generations to come. A valuable contribution is Dr. Elsberg's "Bibliography of laryngology in the United States," dating from the earliest records to 1875. In 1875 Dr. Lefferts began to publish monthly a complete report of the current laryngological literature of the world. This was carried on by him for a number of years, and later was taken up without interruption by the "Index Medicus," where it is still continued. Of the total amount of laryngological literature of the world, the United States contributes 25 per cent, and of this New York's share is large and of superior excellence.

Of teachers, New York has produced and is still producing a splendid array, many of whom have attained the highest distinction, both in the departments of graduate and of undergraduate instruction. Dr. Wagner established the Metropolitan Throat Hospital and made it a model institution, which soon became famous among those desiring advanced instruction. Many of his pupils were destined to advance to positions of eminence, as such names as Desvenine, of Havana, Lowman, of Cleveland, and Simpson, of New York, will testify.

According to the statements of the late Dr. Elsberg, he himself was the first to lecture on laryngology in the United States. He began in New York City in 1861, and in 1863 established a laryngological clinic at the University Medical College. Dr. Elsberg claimed that this was the first public clinic in America and perhaps in the world. The present year (1913) marks its fiftieth anniversary and finds in New York City alone nearly sixty clinics for the treatment of diseases of the throat.

In the history of the Society, the fine altruism of medicine at its best has been splendidly shown. The great discoveries were not hoarded for the purpose of personal gain but were freely and enthusiastically given to the profession and to the world, with the freest liberality and the most broad-minded and philanthropic spirit. The idea that salvarsan could be patented had not occurred to their unsophisticated minds.

The history of the Society since it became the Section on Laryngology of the Academy of Medicine, itself the first and best institution of its kind in the world, is too recent to admit my bringing it before you tonight. Suffice it to say that it has thus far well sustained its traditions.

Its present is most satisfactory and the promise of the future was never more bright.

It is my strong and earnest desire to excite and foster a lively interest in the history of our specialty in this country. That a knowledge of what has been done in the past by others may at any time be productive of most valuable results to ourselves has been frequently shown. Thus, the work of Professor Langley and of the Wrights in the invention of a flying machine, although apparently a failure, was turned to brilliant success by the introduction of the motor engine. A given work of the past may have fallen short of success simply for the lack of some element or detail which later years have supplied. This idea has been beautifully illustrated by the evolution of the bronchoscope. We of New York may claim no inconsiderable share of the credit for this wonderful invention, as will be seen when we remember the principles upon which it depends. These are, the tolerance of the larynx to the presence of a foreign body, the insertion into it of a tube capable of dilating it to its fullest extent, and the introduction through this tube and into the deeper parts of the air passages of a powerful light. The tolerance of the larynx to the passage of a foreign body was first definitely established by Horace Green of New York; O'Dwyer of New York demonstrated that the larynx would retain a dilator for an indefinite length of time. He himself also devised a tube for the express purpose of facilitating the expulsion of foreign bodies from the trachea; thus propounding the grand fundamental idea of the instrument. Acting upon this suggestion, Coolidge of Boston lengthened the O'Dwyer tube and illuminated the trachea through it with a strong reflected light. Thomas Edison of New York had invented the incandescent electric lamp, and this had been modified in the form of lamps capable of being used in the exploration of various cavities of the body. To adopt this principle of examination to the method of Coolidge and of Mosher. also of Boston, was comparatively simple, and when Kirstein and Killian had exhausted their ingenuity Chevalier Jackson, another American, set his brilliant mind upon the matter and gave to the world the perfected bronchoscope.

Again, the fact that an invention or an idea is old is no proof that it is necessarily inferior to something more recent. On the contrary, many an old method is superior to the ones which have taken its place, and its abandonment has been a step backward and a distinct loss. There are always those who will say: "Of what use is a knowledge of the past? Why should I waste time upon it when the present holds out so much to me and the future is beyond?" No thinking man can satisfy his mind with this sentiment, as the history of the development of the bronchoscope proves. We have no way of judging of the future, or, indeed, of truthfully understanding the present but by the past. And, knowing the past and guiding ourselves by it, how many successes might we emulate, how many errors avoid? History instructs and warns. Tradition, the outgrowth of history, dignifies; while, fostered by tradition, sentiment stimulates us to action and inspires us to high aims.

One of the chief objects of this meeting is to arouse in the members of the Society, present and to come, a lively interest in the work of the past. To that end we have tried to give not only the record of its origin and its early career, but to place in the permanent keeping of a strong and enduring institution certain definite reminders of the past of laryngology in America and in New York. These things might have been deposited elsewhere, but there is no city where they so rightfully belong as in New York, and no institution likely to better utilize and appreciate them than the Academy of Medicine.

This tablet, which I have taken great satisfaction in preparing for you, has been accepted by the Trustees of the Academy and approved by the members of the Section on Laryngology in regular meeting. I place it in your safe-keeping with full confidence that it will fulfil its intended mission. May it arouse in us and in those who shall come after us a desire for full and thorough knowledge in all that pertains to our chosen field of professional work; may it add to our enthusiasm and respect for this great metropolis of which we are citizens; may it stimulate a just appreciation of American medicine and a high ambition to forever keep it by superior ability, by superior energy, and, far above all, by superior integrity, in the forefront of the progress of the world.

Acceptance of Bronze Tablet and Memorabilia. DR. WILLIAM WESLEY CARTER.

DR. DELAVAN: In presenting this artistic bronze tablet commemorating the fortieth anniversary of the Laryngological Section of the Academy of Medicine, you record to posterity the distinction of its birth; and in donating these valuable memorabilia bearing upon its early history, and these early models of instruments, some of which we find so useful to-day, and thus showing the evolution of our present armamentarium, you have established a shrine to which its members can ever look for inspiration.

In accepting these historic emblems the Section recognizes with grateful appreciation your professional pride in its welfare, and it pledges itself to maintain the high standard upon which the original society was founded.

Organized as it was in the very infancy of laryngology in this country this Section has exerted a distinct influence upon our specialty, and has contributed its full share to its unparalleled growth. It is well, therefore, for us, who have come upon the arena after the first great battles have been fought and won by our worthy forbears, to know whence came the enthusiasm that has accomplished these results.

Among all the specialties not one has advanced with more rapid strides; for only a few years ago laryngology received only a modicum of respect and its devotees were almost ostracised by the general profession. But all this is changed, and it is now recognized as a calling well worthy of the best efforts of the most skillful men in the profession.

Laryngology is a child of necessity, and like all such offsprings it is endowed with those sturdy characteristics especially designed for overcoming difficulties. But the position of distinction that our specialty now occupies is due, not to any fortuitous circumstances, but to the character of the men who have embraced it. So let us not fail, while utilizing the gains of science, to appreciate the dignity and worth of those through whom they were obtained.

At no time in the history of laryngology have there been so many able men engaged in devising new methods and in perfecting the old; to name one would necessitate the naming of dozens; and to even mention the new and efficient procedures for relieving the various abnormal conditions that arise within our field of effort would require an extra allowance of time. I may mention only one, the bronchoscope; this instrument has opened up a new field to the laryngologist, the extent of which with its wonderful possibilities is only just beginning to be appreciated. The knowledge of this instrument should be spread throughout the length and breadth of the land, so that every layman may know that when a foreign body becomes lodged in the air passages it may be removed under the direct guidance of the eye by one skilled in its use. This knowledge would stimulate the parent to act quickly should this emergency arise, and I believe that many children would be saved from death by suffocation, broncho-pneumonia and abscess of the lung.

Our Section has not only followed the great advances made in our science but it has contributed to it largely. Indeed there are men within my hearing tonight whose contributions to the science of our specialty have been admired, not only in our own country but in foreign parts as well, and their works claim a place of distinction in the literature of every country in the world. There are men among us who have drunk deep of the astral wines, and who can see, engraved upon the very stars themselves, the great future of our specialty.

It is indeed a fitting tribute to this the oldest laryngological society in the world, that this beautiful bronze tablet shall occupy an appropriate place on the walls of the Academy, where it will preserve in perpetuity the distinction of its birth.

DISCUSSION.

DR. GLEITSMANN said that he had occasion about seven years ago to look up the early history of laryngology in the United States, at the occurrence of the seventieth birthday of the late Leopold Schroetter, whose previous assistant requested his former pupils to contribute articles to a "Festschrift" to be dedicated to him.

Schroetter at that time was not only an excellent and popular teacher, drawing physicians from many countries to his clinic but was also a very convivial fellow, who joined his students in the evening in the favorite medical restaurant, the Riedhof, which was still in existence at a visit to Vienna in 1909.

The development of laryngology in the United States has been so fully described by Dr. Delavan that very little can be added, while in Schroetter's "Festschrift," 1907, it was stated that in twelve colleges no laryngology was taught, now all have teachers for our specialty.

As Dr. Delavan stated, Dr. Elsberg established (1863) the first laryngological clinic at the University Medical College. The College of Physicians and Surgeons opened, at Dr. Leffert's request, a laryngological clinic in 1875, which soon became well and favorably known by the thorough teaching and the practical clinical work of the assistants. To this clinic Leffert devoted all his energy and he kept complete memoranda of its work till he resigned. He gave the speaker the privilege to inspect them, and he prefaced and dedicated them with a tribute to the interest and help he had derived in his work, viz., to his wife.

Regular Meeting, December 17, 1913.

Hydrorrhea Nasalis: Cured. DR. JOHN GUTTMAN.

The patient was sick in April, 1910. One morning on getting up she had a copious, clear, watery discharge from the nose. This continued for a day and night, and at night she could not sleep for she had to bend forward and put towels under her nose—if she lay on her back the discharge would run down the throat and choke her. This continued for six weeks and then suddenly stopped. Then she had another attack which lasted for a week or two. She went to all sorts of dispensaries and to various doctors, but the attacks continued off and on for three years, with intervals of a few weeks or months. She was a hair dresser by vocation, but could not follow her occupation because the discharge would fall upon the hair of her customers. In April, 1911, she went for six weeks to a large Eye, Ear, and Throat Hospital in the city and was examined very thoroughly; her blood was examined, and an x-ray picture was taken, and then as she expressed it, they suggested "to operate on her spinal column." This she refused, and finally came to Dr. Guttman, who had the discharge examined at the Neurological Institute. They reported that the discharge was nasal, not spinal fluid. Dr. Guttman then tried various medications without any effect. He then removed the middle turbinate body on the healthy side. The discharge came from the left side, but the right turbinate was removed without any effect. A week later, the left turbinate was removed and immediately the discharge ceased and has not since recurred. The patient feels as well as she ever did.

The condition seems to be a sort of vaso-motor disturbance belonging to the same class as hay-fever and rhinitis nervosa. It is a reflex irritation. The point of irritation lies probably in the nose, thence affecting the nerve which leads to the central nervous system, and from there to the vaso-motor nervous system,—hence the discharge. The condition seems to have been checked by severing the ends of the centripetal nerve and so inhibiting the irritation. There was no sign of any accessory sinus affection, and nothing of any significance to be seen but the copious exudation. Dr. Guttman said that this was the only theory by which he could explain the case. He could only find one similar case, reported by

St. Clair Thomson. In this case Lichtwitz operated on the nose and by entering the frontal sinus through the nose was able to cure the condition.

DISCUSSION.

Dr. Harmon Smith said that he wished to corrobrate the symptoms enumerated by Dr. Guttman, as the case had been under his personal supervision at the Manhattan Eye, Ear and Throat Hospital. He had had the fluid examined chemically to determine if it were a true hydrorrhea or a cerebro-spinal fluid, the only way by which the character of the discharge can be accurately determined, and the report had proved it to be a true hydrorrhea. Examination of the mucosa revealed little or nothing to account for the excessive discharge. The patient became discouraged and left the hospital without operative measures being instituted. Dr. Smith said that he had seen Dr. St. Clair Thomson's case referred to, which was in many ways similar to this one. In Thomson's case the woman could hold her head over a cup and fill it with fluid in two or three hours. The skiagraph showed no fracture of the cribriform plate nor any sinus involvement. He said that Dr. Guttman was to be congratulated upon perfecting a cure, as the woman was in such a state that she was unable to carry on her vocation.

Dr. Freudenthal said that it seemed to be a clear case of hydrorrhea nasalis, of which he had seen a good many cases in former years. The main symptom is nervousness. The discharge starts when it pleases the patient and stops when it pleases the patient. He had seen cases continue for a year, and then without any indication, cease. In one instance the cerebro-spinal fluid came from the nose. That case contined for five years; it started after Dr. Herman Knapp had removed the middle turbinate bone, and continued for five or six years and then suddenly ceased. Whether these cases are fore-runners of accessory sinus disease, he could not say. He cited a case in which a lady had had a hydrorrhea on one side of the nose for years, and then suddenly developed a frontal sinusitis on the same side. She was operated upon and got perfectly well.

Dr. Lederman inquired about the condition of the turbinals in this case and the indications for their removal. The fact that the hydrorrhea was cured so promptly was evidence of its neurotic origin, and Dr. Guttman's theory no doubt accounted for the condition.

Dr. Guttman said that he could not give an accurate explanation of the case. It was simply an exemplification of the old Latin quotation, cessanti causa cessat effectus," (when the cause ceases the effect ceases). Dr. Freudenthal's explanation of nervousness was not sufficient, for the nervousness could have ceased long before the turbinectomy, but it stopped an hour after the operation on the affected side. That must have had some connection, for if it were nervousness alone why did it not stop when the healthy side was operated upon? The history of nervousness may have had something to do with the condition, but the operation on the healthy side had no effect whatever; whereas as soon as the affected side was operated upon the discharge ceased. There were not many objective symptoms. There were hardly any pathological conditions. The turbinates were removed because there seemed nothing else to do.

Lymphatic Leucemia. DR. B. MUNDAY.

The case was presented more on account of its rarity than because it was a strictly throat condition. It was a case of acute lymphatic leucemia, and was mainly interesting from the diagnostic standpoint. It had run an acute course, the temperature ranging from 102° to 105° with remissions. The trouble began in the left parotid gland, and three days later the other side was affected. At first it was supposed to be a case of mumps, but not being relieved by the usual treatment and the submaxillary glands becoming involved, the patient was taken to a pathologist who made a blood examination, showing a leucocytosis of 80,000, the lymphocytes predominating to the extent of 67 per cent.

The case is to be distinguished from spleno-myelogenous leucemia, the more common form, the lymphatic form being a rare condition. The distinguishing feature between the two is that in the lymphatic leucemia the lymphocytes predominate; in the other, the myelocytes, peculiar to the bone marrow, are in excess. It is, of course, to be differentiated from pseudo-leucemia or Hodgkins' disease.

The case was of three weeks' duration. The child had an aphthous stomatitis. The blood count showed hemoglobin, 80 to 85 per cent; erythrocytes, 4,000,000; leucocytes, 80,000. Differential count; large mononuclear lymphocytes, 15 per cent; small mononuclear lymphocytes, 67 per cent; polynuclear neutrophiles, 15 per cent. In the spleno-myelogenous form the myelocytes would be from 60 to 80 per cent.

The spleen in this case is markedly enlarged, and the x-ray shows a distinct tumor of the mediastinum.

DR. LAW said that there was not much need for interpretation of the x-ray plate, for the growth was so large that one could determine the outline very clearly. The lower border of the tumor overlaps the heart and extends to the right side about 4 inches beyond the sternum. It was almost as large as the heart in every diameter. If it were not for the history of the case, one would be liable to say that it was an enlarged thymus, but taking the history into account, he was inclined to think that it was a tumor, probably involving the thymus structure.

DR. GUNTZER asked if the x-ray plate could be seen.

DR. LEDERMAN asked what the blood-count was in a case of ordinary cervical adenitis.

DR. MUNDAY replied that he could not answer that question off hand but that the question of diagnosis lay in the differential blood count; an acute adenitis would give a high percentage of polymorphonuclear leucocytes.

DR. EMERSON said that it would depend on the character of the infection.

DR. THURBER asked if the child had any dyspnea.

DR. MUNDAY replied that there was none yet, but that there was a marked engorgement of the superficial veins of the chest and abdomen.

DR. COCKS asked if Dr. Munday had excluded the possibility of the stomatitis being caused by Vincent's organisms. Dr. Sondern read a paper last spring before the Academy of Medicine, calling attention to the close connection between Vincent's angina and lymphatic leucemia. There might be such an association in this case.

Dr. Carter inquired whether the thymus is not frequently enlarged in lymphatic leucemia.

Dr. Munday, replying to Dr. Carter's inquiry about the thymus, said that he had been looking up that question and that it did not seem to be given as one of the diagnostic points.

In regard to Dr. Cocks' question about Vincent's angina and the stomatitis, Dr. Munday said that had occurred only recently and did not exist at the beginning of the trouble. An examination has not yet been made to determine whether or not it is a case of Vincent's angina.

Laryngectomy Combined with Gastrostomy. Dr. Frank Torek.

The feeding of a patient who has been subjected to an extensive laryngectomy, especially if complicated by a partial resection of the pharynx, is attended by difficulties and dangers. If a permanent tube is introduced through the nose into the esophagus its constant presence not only causes the patient much inconvenience but also interferes with the healing of the wound through the fact that the tube, which cannot be kept aseptic, rests against the suture of the pharynx. This suture becomes infected and gives way, and not rarely necrosis results. The infection spreads downward, and the tracheal stump which had been sutured to the skin, may separate from it here and there. It may then happen that even after the patient has successfully rallied from the operation as such, he will aspirate secretions and succomb to a pneumonia.

If, on the other hand, the stomach-tube is introduced every time the patient is to be fed, the conditions are, if anything, still worse, for the introduction of the tube, done at least occasionally, by the nurses, may easily result in perforation of the suture line. I have experienced such a case in which the tube had been pushed through the suture line of the pharynx, and the accident was not noticed until the fluid food that was poured into the tube ran through the dressings into the patient's lap.

In the case here presented I overcame these difficulties in a very simple way. When the laryngectomy had been completed I performed a gastrostomy according to Witzel's method in order to administer the food through the gastric fistula. The case was a far advanced one, in which not only the whole larynx and epiglottis had to be removed, but also the anterior wall of the pharynx had to be resected to the extent of three or four centimeters and a portion of the base of the tongue likewise had to be excised. Under these circumstances the conditions for suturing the pharynx were, of course, very unfavorable. Nevertheless, although on the sixth day the presence of mucus in the wound gave proof that a portion of the wound had given way, the after-treatment, particularly as regards the change of dressings, was so simple that the difference between this case and former ones was marked.

The healing of the wound progressed without any disturbance. The pharynx fistula closed after 4½ weeks and the patient could again swallow both fluid and solid food. At the same time the gastrostomy tube was removed and the gastric fistula closed promptly, without leaking a drop.

The addition of a gastrostomy to an extirpation of the larynx does not add very materially to the severity of the operation; for the laryngectomy is done, as I have lately always performed it, under local anesthesia. In such advanced cases the severe dyspnea forbids operating under general anesthesia, unless one has chosen to perform a preliminary tracheotomy. This, however, one will prefer to avoid in the interest of asepsis. For local anesthesia I employ a ½ per cent solution of novocain with suprarenin deep injections being made to anesthetize the trachea and larynx, and superficial ones for the overlying soft parts. The deep injections are four in number on each side. The first, to block the superior laryngeal nerve, is made between the hyoid bone and thyroid cartilage into the thyro-hyoid membrane two centimeters from the median line. The incisure of the larynx serves as a guide to the median line. The other three injections are made at points farther down to reach the posterior part of the larynx and trachea. For these a curved needle is of advantage. One of these is made behind the cricoid cartilage, another below the isthmus, and the lowest one in the region of the jugular notch. At least 5 ccm. of the solution is injected at each site, the injection beginning at the deepest spot and being continued as the needle is drawn forward. Then superficial injecions are made corresponding to the lines of incision. I employed a T-shaped incision. The operation itself is made according to Gluck's well known method, with transverse division of the trachea and suture of the tracheal stump to the skin in the jugular.

When the laryngectomy has been completed, the patient, who now breathes again with perfect ease, can readily take an inhalation narcosis through the tracheal opening for his gastrostomy. Of course it is also possible to perform the gastrostomy under local anesthesia.

This little addition to the technic of laryngectomy, I feel sure, will prove to be of good service in many difficult and extensive cases.

DISCUSSION.

Dr. Freudenthal said that he saw the patient early in the spring. At that time there was a mass of tissue which was not absolutely characteristic of malignant growth, and it did not appear very large. He advised removal of a piece for examination and explained what would be the result if it proved to be malignant. A piece was removed under suspension laryngoscopy, and during this procedure he saw how large the mass really was. Large pieces were removed, as the patient had asked that the whole mass be taken out, if possible. The tissue was examined and reported to be non-malignant. However, it grew very rapidly, and within a few weeks the same procedure was repeated. Again the report was that it did not show any malignancy, although it seemed clear to him that the condition was malignant, or it would not have returned so quickly. About that time he left for Europe, and on his return in the fall the patient showed up again suffering from a severe dyspnea, and asked whether he could go to Dr. Torek for an operation. Dr. Freudenthal said that he assented to this, and was present at the operation, and had been impressed by the large amount of novocain used by Dr. Torek,—150 to 180 of a half per cent solution,—and also by the gastrostomy which Dr. Torek performed, which was an entirely new point in such a condition. If it proves as beneficial in other cases as in this one it should be more generally applied.

(*To be continued*).

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

Regular Meeting, September 23, 1913.

Dr. Ross Hall Skillern, Chairman.

Tracheotomy with Lantern Slide Demonstrations. Dr. Chevalier Jackson.

Indications for tracheotomy may be classified under three heads: 1. Dyspnea. 2. Therapeutic measure in the absence of dyspnea. 3. As a preliminary to other surgical procedures namely laryngectomy, laryngotomy, and laryngostomic fistula.

Dyspnea demands tracheotomy. We preach early tracheotomy and perform it late. When cyanosis is present we have waited too long. Ashy gray color is associated with dangerous dyspnea. Two cases of papilloma were found dead in bed; operation delayed too long.

Instruments: A knife, the index and the middle fingers are the essentials.

Anesthesia: Always local and absolutely never general.

The accessory muscles aid to a greater degree than we realize; therefore a patient with marked dyspnea dropping off to sleep may choke up because the aid of accessory muscles has been arrested. Chloroform should never be used. We keep on reporting, "patient ceased to breathe under general anesthesia;" a "few whiffs of chloroform and the patient died."

As far as the anatomy is concerned, forget it altogether. The Doctor illustrated (blackboard demonstration) what he termed as a safety and danger zone in the operation. The safety zone in the center and the danger zone to the right and left, the latter containing the vessels and nerves are pushed aside.

Technic: Technic is more often neglected than in any other class of operations; asepsis counts just the same as in any other operation but if the case is an extremely urgent one do not let the patient die on account of certain prescribed rules but be as careful as possible Local asepsis reduces the mortality in tracheotomy to 2 per cent.

Operations: The three methods usually described are: 1. Through the crico-thyroid membrane. 2. The high. 3. The low tracheotomy. Operations through the crico-thyroid membrane should be eliminated as useless. If one is unfamiliar with laryngeal work any operation is justifiable in extreme cases. The so-called high and low operations, a misfortune in literature. One great big wound from the thyroid cartilage down makes the operation easy. The deep operation is difficult and we have a low-down deep wound. Dissecting with the aid of groove director is beautiful from an anatomical point of view but there is no advantage in this method, and besides we often want to get through as soon as possible. By all means avoid the stab wound.

Two incisions should complete the operation. Caution: Do not cut too deep, especially does this rule apply to children during coughing on account of the party wall between trachea and esophagus, the latter may be wounded. Make one long incision avoiding the cricoid cartilage. The large portion of the post-operating trouble is due to injuries to cricoid. Rough use of dilators and retractors is apt to strip pericondrium from tracheal rings and cause exuberant granulations damaging inter-annular membrane and followed by stenosis. Do not be carried away with new plans such as flap or window flap operations which are liable to be followed by necrosis of cartilage and stenosis. Do not stop cutting with first hiss of air. With a crack of two or three rings we have made incision free enough for excess of air. It is well to have the air impregnated with compound tincture of benzoin. It is essential to have two canulae to facilitate dressings and avoid delay. Get all tenacious matter out of tube before boiling the latter otherwise it is more difficult to remove and be sure tube is in trachea and long enough to allow for swelling; and every tube ought to have an obturator. An especially trained nurse for this world is indispensable.

Morphin should not be administered—cough is the watch dog. In tuberculous laryngitis tracheotomy may be performed as a therapeutic measure. To induce anesthesia—interdermatic instead of hyperdermatic method is advised. In absence of sand bag, tucking back of forehead will bring operating field into prominence.

Most rapid method of operating: Middle index-finger and thumb of left hand to push soft parts to left and right of operating field and when in a hurry do not bother about isthmus of thyroid gland or veins. When about to incise trachea, fixing middle finger on left side, and thumb on right the index-finger is moved downward feeling washboard-like rings of trachea.

After-care: It is a mistake to sew up the wound because cartilage is extremely slow to unite, not on account of emphysema but because we are apt to get fungations within the trachea. Pack wound lightly with broad pieces of bichlorid gauze until healed from the bottom.

DISCUSSION.

Dr. J. Solis-Cohen: My method would now appear antiquated. For local anesthesia I have often used refrigeration and am opposed to general anesthesia. Would take away hangers from each side of the tube, inner tube can readily be raised without them. To maintain moisture keep an apron of gauze over the opening. Forcing a too short tube may cause emphysema into connective tissue; curetting into connective tissue over the line of incision will prevent it. Have always made a small incision to avoid scarring, and a short bladed knife with a shoulder is recommended to avoid wounding the posterior wall of the trachea; incise during insipration.

Treatment: Always use two tubes. The tube is held in position with button tapes, one tape is long and other short and they button on the side instead of the back. Cannot see how long tubes avoid striking the anterior or posterior wall when the patient is in the sitting position.

Dr. Wm. L. Rodman: It is always inspiring to hear Dr. Jackson talk and I am pleased to have listened to his well-thought-out principles. We are glad to have Dr. Skillern who is skilled in this work as a colleague. I agree that we often think about early operations but really do them late. I wish to emphasize one point, that is, the importance of oral antisepsis in operations on the jaw, throat and tongue. On account of the danger of septic pneumonia, keep such patients up to encourage expectoration. The stab-wound is an unsurgical procedure, the opening is entirely too small. I favor the high operation and a long incision.

Dr. Royal W. Bemis: When tracheotomy is performed after intubation in croup cases the low operation is preferred, to get below the membrane and usually a small incision is made.

Dr. G. W. Mackenzie: I would ask Dr. Jackson if he has ever found any benefit following tracheotomy in benign growths of the larynx, for instance papilloma.

Dr. G. M. Coates inquired as to Dr. Jackson's method of using local anesthesia. Dr. Coates said he had been accustomed to infiltrate the skin with novocain and use Schleich's solution for deeper infiltrations but doubted whether the latter was really necessary. He was glad to know that Dr. Jackson never used general anesthesia as it always seemed to him that a terrible chance was taken when ether was given to a case where respiration was already so much embarrassed as in the majority of cases needing tracheotomy. The long tubes shown by Dr. Jackson are most useful and vastly superior to the old short tubes which were often forced out of the wound by post-operative swelling or emphysema. He was particularly glad to hear Dr. Jackson lay much stress on the after-treatment, as that part of the subject is usually neglected in text-books.

Dr. Ross Hall Skillern: Tracheotomy at present may be viewed from two standpoints; that of the surgeon and that of the laryngologist. The former frequently does not find an indication for the operation until it is too late while the laryngologist is often in doubt as to the advisability of tracheotomy, intubation or bronchoscopy. It may be that the new suspension-laryngoscopy of Killian will go far towards solving the problem, a problem moreover which requires instant decision as far as the operation itself is concerned. Dr. Jackson's point regarding the lengthy incision is the crux of the entire procedure as the trachea can then be opened under absolute control of the eyes without any semblance of "stabbing by feel." One of the most difficult points to deal with in the after-treatment is the expulsion of the canula with consequent danger of suffocation. This is due to the faulty construction of the ordinary canula as usually found in the shops. They are entirely too short and can easily be drawn out of the trachea by the post-operative swelling and paroxysms of coughing. Dr. Jackson's long tubes are constructed to obviate this difficulty. Another complication which not infrequently ensues in the after-treatment is difficult canulization. This is due to the spin of granulation-tissue which forms on the posterior tracheal wall just above the curve of the canula and on removing the tube presses on the anterior wall; thus occluding the tracheal lumen. Chiari has invented a chimney canula to overcome this difficulty but the long tubes of Jackson are far better adapted for this purpose besides having the advantage of being easier to remove and cleanse.

Dr. Jackson (closing): In regard to Dr. Coates inquiry I find the interdermic method of local anesthesia quite satisfactory. Salt solution alone is not sufficient but 1-100 gr. of cocain to the ounce of salt solution is quite sufficient. An infinitesimal amount of cocain will blunt the nerve endings. Amount of cocain in Schleich's solution entirely unnecessary. Have not practiced the deep infiltration method but if doing so would go through the line of skin incision; there is no objection to it and I believe it a good suggestion.

Replying to Dr. Mackenzie I would say that in my practice tracheotomy has been of no advantage in cases of papillomata but cannot say that I am convinced it is of no benefit. Tracheotomy is of benefit in all conditions associated with pus in the larynx on account of drainage through tracheotomy tube. Children expectorate very well through the tube but not through the mouth.

Regular Meeting, October 21, 1913.

Operations for the Correction of Deformities of the Nose. Practical Demonstration of Bridge-Splint and Bone Transplantation Operations on the Cadaver. Dr. William Wesley Carter.

I am glad that your President has specified in his invitation to me to address you that I shall present this subject in a practical way, for I am quite certain that no more satisfactory way could have been chosen to convey information upon this essentially practical subject than by demonstration on the cadaver and by the recital of one's clinical experience.

For practical purposes nasal deformities may be divided into: (1) Those without loss of tissue. (2) Those in which there has been more or less destruction of the bony and cartilaginous framework of the organ. Cases belonging to the first classes are congenital, acquired or due to traumatism, and as a rule are amenable to the bridge-splint operation. This procedure has for its object the replacement of the tissues of the nose into their normal position, and corrects the intra-nasal as well as the external deformity.

Description of instruments: The bridge-splint consists of a lightly constructed steel bridge, the two wings of which are hinged together in the middle, the distance to which these wings can be separated is regulated by a thumb-screw. The edges of the wings are padded with rubber. The second part of the instrument consists of two small intra-nasal splints perforated by several small holes.

Description of operation: Unless the case is one of recent fracture we must first mobilize the bony framework of the nose by means of these special instruments: the chisel-forceps, the intra-nasal chisel, and the Adam's forceps. First I introduce the intra-nasal chisel, placing the center of the blade against the anterior edge of the nasal process of the superior maxilla. A few taps with the mallet and the chisel is sufficiently engaged to split off this process by a slight inward turn of the chisel. This process is repeated on the opposite side. The upper ends of the nasal bones are then liberated by means of the chisel forceps, the outer blade being padded with rubber tubing. The Adam's forceps is now used to complete the mobilization of the bony framework. If the septum is too short, due to a badly depressed deformity, it is incised diagonally from the floor of one nasal cavity to the roof of the other; when the nasal bridge is raised, these two segments slide by each other and the septum is lengthened without leaving a perforation.

Application of the instrument: A silk suture is passed through one of the holes in each of the intra-nasal splints and knotted. Each suture is then threaded into a large curved needle and passed from within the nose through the cartilaginous dorsum near the ends of the nasal bone.

The bridge is then applied, and the sutures brought up through perforations in the latter. By means of the sutures a sufficient amount of traction is applied to pull the nose up into its proper position. The sutures are then tied together over the hinge of the bridge, and the proper amount of pressure is applied to the base of the nasal triangle by regulating the thumb-screw. The instrument is self-retaining and should be left on for ten to fourteen days. Each day the bridge should be loosened up and the skin the wings rest on bathed with alcohol to prevent necrosis. This method has proved most satisfactory in the treatment of recent fractures and old depressed deformities where a sufficient amount of bony framework remains to support the nose in its correct position after removal of the bridge.

Bone transplantation: We will now consider the second class of deformities, those in which there is a deficiency of bony framework. In these, bone from some other part of the body must be substituted for that which has been lost.

Several hours before the operation the skin over the nose and over the right side of the chest is scrubbed with green soap and water, and a wet bichlorid dressing (1-5000) applied. Immediately before the operation these areas are painted with tr. iodin and the eyebrows are covered with collodion. After operation begins no solution is used except sterilized normal salt solution.

A curvilinear incision, convexity downward, is made between the eyebrows. This extends down to the periosteum but not through it. Lifting up the flap a short incision is made through the periosteum on a line connecting the two cornua of the first incision. The periosteum is elevated for ⅜ of an inch above this. With a special, sharp elevator the skin and subcutaneous tissue is elevated over the dorsum and sides of the nose, and if necessary over the cheeks.

A section of the ninth rib two inches long is then removed, the periosteum on the outer surface being preserved. This is split in its transverse diameter, the cancellous tissue scraped from the outer half, and the compact fragment of bone shaped to suit the deformity. The transplant is introduced nearly to the tip of the nose and the upper end anchored under the periosteum over the naso-frontal process. The blood-clot is not removed, as this favors osteo-genesis. The wound is closed with fine silk or horse-hair. Sutures are removed in five days. Healing is complete in ten days.

Summary of conclusions drawn from clinical and x-ray observation of twenty cases, oldest nearly 4 years old: (1) Bone *uncovered by periosteum*, anchored under periosteum over the frontal bone becomes united to the frontal bone; graft is larger at this point and where it lies in contact with denuded nasal bones. New bone is extending along the grafts from these points. (2) Bone either *covered or uncovered by periosteum*, but accidentally *separated from the living periosteum and bone.* New bone is being deposited around the original graft, which is apparently undergoing absorption. In one case of 2½ years standing considerable growth of bone has occurred. (3) Cases where wound was *infected*, transplant has been *completely absorbed.* (4) Cases where periosteum-covered bone was successfully implanted: Firm union to frontal bone and transplant has grown vigorously. There is a line of rarefaction running down the center of the graft, apparently indicating that the original bone is being absorbed.

Conclusions: (1) Bone transplantation is the most satisfactory method for correcting nasal deformities attended by the loss of the bony framework of the nose. (2) Bare transplants, not connected with the living periosteum and bone, act in an osteo-inductive capacity. (3) When connected with living, periosteum-covered bone they are in addition osteo-conductive and possibly osteo-genetic. (4) Periosteum-covered transplants connected with the living periosteum-covered bone are osteo-genetic. (5) The original bone is probably absorbed, but is replaced by the new bone growing around it. (This conclusion is reached because in each case there appears a line of rarefaction extending down the center of the graft.) (6) The periosteum has a decided osteo-genetic function.

DISCUSSION.

Dr. Ernst La Place expressed his appreciation of Dr. Carter's technic and skill. Such work makes progress in operations for deformities in the nose. The first operation described is an improvement on one he devised sixteen years ago; a straight incision in median portion of nose, chiseling and separating. About forty cases were operated on. Dr. Carter's operation should give better results, less traumatism and less risk of infection. For Dr. Carter's osteo-plastic operation he has nothing but admiration. Here the parts being plentifully supplied with blood, the advantages of bone transplantation are manifest and have been fully and beautifully demonstrated, and the evident perfect cosmetic results as shown in the casts, mark a distinct epoch.

Has Dr. Carter noted in any of his cases that growth of bone got beyond control? For in such an instance, distortion rather than embellishment would follow. A little periosteum is always of advantage and will help in reproduction of bone.

Dr. Eugene Vansant: Deformities should be divided into two classes, —recent and old. In recent cases it is not much trouble to mould the parts and they rapidly heal. In old cases it is different, old tissues change and shorten and after correction the pull and drag often cause reappearance of the deformity. Dr. Carter, in loosening all tissues, takes a great step in advance. In Berlin some years ago he purchased a splint somewhat like Dr. Carter's; shortly after his return he had occasion to use same on a recent case, complete restoration followed.

Dr. George M. Coates: Dr. Coates said he had had no experience with Dr. Carter's method but had been interested in the results obtained by

Dr. Babbitt in a couple of cases recently seen by him. In these the ascending process of the superior maxillary were chiseled through the skin. It should be a distinct advantage to operate through the nose as Dr. Carter does. He asked Dr. Carter at what point on the inside nasal wall the chisel was inserted.

Dr. Herbert Goddard: I should like to ask Dr. Carter the age of the oldest and youngest patients on whom he performed the bone-transplantation operation, and should also like to have him express his opinion as to the age-limit in the sub-mucous operation.

Dr. Fielding O. Lewis: Does the splint cause any pressure on the eyes? I believe failure is often the result of improper splinting.

Dr. Carter (closing): It is remarkable what can be done to the nose. It stands great amount of traumatism, and is more or less immune to infections habitually found in the nose. Dr. La Place asks if I have found any over-growth of bone. I have not, one transplantation is growing at a remarkable rate but I believe there will be no over-growth. While there are many advocates for and against the use of periosteum there is no question in my mind but that periosteum does help; therefore I believe in keeping in the middle of the road.

Referring to what Dr. Vansant has said, contraction of tissues is one of the greatest problems to contend with. In syphilitic tuberculous cases liberal elevation of soft parts is essential and if mattress sutures are placed on the face, adhesions take place, but always nearer the nose. Have never used cartilage, it is non-vascular, is always absorbed, and therefore not good to transplant. Adhesive plaster as splint in recent cases is absurd and an absolutely unsurgical procedure; it pushes the nose down and holds it there. In a recent case the splint not only corrected the deformity, but also corrected an old septal deformity.

Replying to Dr. Goddard's question, the youngest patient was 4 years and the oldest 47 years old. Bone-transplantation is not recommended in very young patients, better the bridge splint or some modification of it. Bone-transplantation in the aged is inadvisable because osteo-genetic property is lost. The splint should be placed below inner canthus, otherwise it may prevent tears from flowing down the duct.

In very young subjects an operation like Dr. Gleason's is preferred to a sub-mucous resection. Very little prominence at the upper end of the bone-graft remains after a short time.

Regular Meeting, November 18, 1913.

Presentation of Cases.

Dr. G. W. Mackenzie demonstrated the esophagus, trachea and lungs of a child, 10 months old, who had swallowed a safety-pin, which resulted in death. On being called to see the patient a Jackson esophagoscope was passed, and an attempt was made to remove the pin, which was seen just below the cricoid cartilage, substantiating the x-ray previously taken. It was not possible to extract the body although several different instruments were used. An attempt was finally made to force the pin into the stomach, which succeeded. The child grew rapidly worse and died the following morning. An autopsy was made which brought out the fact that the esophagus had been ruptured presumably by the pin or the tube, and the pleural cavity contained over a pint of bloody serum containing streptococci.

Dr. R. H. Skillern said that esophagoscopy was difficult in children, the ratio being inversely proportionate to the age. Sometimes even in adults it is impossible to remove a foreign body from the esophagus by means of endoscopy. One means should be mentioned which has been more or less neglected, that is the fleuroscope. Some years ago a little boy was brought to Dr. Skillern with a cent in the esophagus. Dr. Pfahler constructed a table in which the x-ray tube was below the patient and the fleuroscope screen held above. Through the screen it was possible to see the penny perfectly as well as the forceps inserted in the esophagus, even the opening and closing of the jaws. It was a simple matter to grasp the coin and remove it in this manner.

Dr. Ross Hall Skillern exhibited a carious tooth drawn from a patient with chronic maxillary empyema. It was possible to trace the course of the infection from the carious portion of the tooth directly through the lingual root into the floor of the antrum. A fine snare wire introduced into the cavity found its way into the sinus. The tooth was extracted, a large opening made into the sinus through the alveolus and a prothesis performed. After several weeks the patient was discharged, cured.

Report of a Case of a Large Choanal Polyp. Dr. R. F. Ridpath.

Choanal polyps have been recognized for a long time, their genesis and point of origin, however, remaining a matter of discussion. Johnson, in 1893, (Transactions of American Laryngological Association), reported one case, and Ingersol, in 1900, (The Laryngoscope) three cases; but neither appeared to recognize their true origin. Killian, 1905, claimed all these growths came from the mucosa of maxillary sinus, making by pressure false opening, or ostium, into the nasal cavity. Kubo, of Japan, a former pupil of Killian several years later, in 1909, substantiated Killian's observations in four cases. Lang, of Budapest, found only one of six cases directly connected to the maxillary sinus; one attached to floor of nose, the other originating from the ethmoid cells. These polyps have long pedicles, pear-shaped, slightly compressible, have arterioles covering and forming red lines over their surface, and requiring considerable force to dislodge. Diagnosis not at all difficult. They interfere with respiration in a mechanical way.

Case 1: Mr. H. S., aged 48, referred to by Dr. B., October 27; is well nourished, has enjoyed excellent health, and no complaint except inability to breath through nose. For the past twenty years polypoid growths in nose; has been operated on numerous times with but temporary relief; last operation more than a year ago, surgeon informing him he had removed ethmoid capsule. Since that time he has felt growth in mouth, latter having gradually increased in size up to the present time.

Examination: anterior rhinoscopy, nose completely occluded by polyps; mouth, teeth fairly good, tongue coated, hard palate, tonsils normal. Posterior rhinoscopy: large polyp completely filling front nasal space and extending half-inch below uvula. October 27: Exenteration of left ethmoid capsule containing many polyps, followed by but slight relief, on account of growth in choana. November 4: Exenteration of right ethmoid capsule. Choanal polyp was found to have originated by long and slender pedicle from maxillary sinus, pedicle cut, polyp removed and point of origin cauterized.

Syphilitic Lesion of the Tonsil and Soft Palate. DR. FIELDING O. LEWIS.

F. E., aged 16, errand boy by occupation. Patient had been in good health until about fifteen months ago. At that time he was said by his family physician to have had diphtheria. He was treated for this condition for eighteen days and was given four injections of antitoxin. He was pronounced cured, but later called in another physician, who stated that he still had a diphtheritic infection and he was under observation for twenty-eight days, and during that time received two additional doses of antitoxin. He was not given any further treatment, and was given no internal treatment but some peroxid of hydrogen as a gargle.

He has never complained of pain; anemic; and has lost a few pounds in weight.

He applied at the Jefferson Hospital for treatment on October 18, for what he thought was a growth in his throat. On examination we found the left tonsil, pillars, and part of the soft palate covered with a necrotic membrane below which was an ulcerated area. His uvula was very much enlarged and ulcerated; Wassermann reaction, negative. He was placed, however, on inunctions of mercurial ointment, and given small doses of potassium iodid. Acid nitrate of mercury was applied locally to the ulcerated areas. The condition has almost entirely disappeared, and the patient has gained nine pounds in two weeks.

Fibroma of Larynx. DR. FIELDING O. LEWIS.

S. L., aged 40, shoemaker by occupation; applied to the Jefferson Hospital about one year ago. Complained of frequent attacks of dyspnea. The man was well nourished; heart and lungs normal; no specific history. Examination of his larynx revealed a large growth, involving the right side of the larynx and vocal cord, a portion of which was removed; pathological report was fibroma of the larynx.

We attacked the remainder of this growth on several occasions by the direct method but were unsuccessful, and resorted to numerous sittings by the indirect method, which has resulted in almost complete eradication of the growth.

DISCUSSION.

DR. G. M. COATES: This patient presented himself for treatment at the Pennsylvania Hospital last summer. It was difficult on account of his short, thick neck to obtain a good view by the direct method. A portion of the growth was removed by indirect method and the patient was lost sight of.

DR. G. M. MACKENZIE advocated laryngo-fissure as the only rational and practical method. After the age of 40 the thyroid cartilage is frequently ossified, necessitating the use of bone-cutting forceps.

Dr. R. H. Skillern strongly advocated the use of the Killian suspension laryngoscope in all intra-laryngeal operations.

Chronic Frontal Sinusitis with External Rupture. Dr. Fielding Lewis.

I. O., colored, aged 52. Six years ago noticed a little elevation at the inner canthus of his left eye which would come and disappear at intervals. Later the elevation became permanent. It gave him no trouble until about December, 1912. He then began to notice loss of vision in his left eye; there was no pain. He consulted the Eye O. P. D. of the Jefferson Hospital in January, 1913. A small growth was then removed from the region of the floor of the left frontal sinus, with the report that it had some communication with the sinus. The pathlogical report was given as a mixed-cell sarcoma. He was then treated with x-ray for some weeks, and then referred to the Nose and Throat O. P. D. and we found involvement of the left ethmoidal as well as of the frontal sinus; apparently no involvement of the left antrum.

In July, 1913, his eye, together with the eyelids, was completely removed. Diseased bone of the frontal sinus and ethmoids were also removed at the same time. The skin incision healed by first intention; the orbit and sinuses are healing by healthy granulation. There is no sign at the present time of any recurrence.

Early Laryngology in Philadelphia. Dr. J. Solis-Cohen.

At the close of the Civil War Dr. Cohen resumed practice devoting his attention to laryngology. Dr. Morrell Mackenzie's "Manual" was the first text-book purchased. Dr. Cohen early became associated with the Northern Dispensary, when an opportunity was afforded to do eye work as well. First view of hidden parts of the larynx was obtained with the aid of a dental mirror. The dentist permitted the use of the instrument under gas between extraction of teeth and recovery of patient. Thus opportunity was afforded to acquire technics, to observe and study.

Demonstrations were given, as practice increased more books and instruments were purchased. First papers were written for *New York Medical Journal*. Many amusing experiences were related as Dr. Cohen recalled his early teaching days when he conducted a private clinic on Ninth street, opposite the University of Pennsylvania. Students were few and far between, and at times patients were as scarce as students.

During his most interesting and instructive address, Dr. Cohen frequently mentioned names of teachers and specialists with whom, from time to time, he has been more or less intimately associated, during his long and distinguished career as a laryngologist.

DISCUSSION.

Dr. E. B. Gleason: Prior to introduction of cocain all methods in vogue for induction of local anesthesia were more or less primitive and altogether unsatisfactory. Surely a rare degree of technic was then essential, and pleasant it is to recall the fact that Dr. Cohen at that time was successfully performing intra-laryngeal surgery. Dr. Gleason was first assistant and later an associate of Dr. Carl Seiber, and therefore gained much of his earlier experience from one of Dr. Cohen's best-known pupils.

At the conclusion of the meeting Dr. Cohen was unanimously elected first honorary member of the Society.

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OPERATIVE DISPOSAL OF CHRONIC SUPPURATION OF THE EAR.

PROF. GHERARDO FERRERI, Rome.

After a brief period of unusual enthusiasm during the last twenty years of the past century when the majority of otologists preferred surgical treatment to the conservative one in suppurations of the middle ear, there is now great silence on this subject in otological literature. We owe to the above period not only important improvements in operative technic in surgery of the middle ear and tympanum, but we also owe to it numerous contributions in pathological anatomy and physiology on the functional sequelae of operations upon the aural apparatus. All this great work has without doubt meant progress in the surgery of diseases of the ear and has accomplished better results than the more or less older conservative methods. Even these results have been eclipsed by the further progress of ear-surgery in complications of acute and chronic suppurative conditions.

For example, it is not rare to find that in a case of purulent chronic otitis media in which some years ago the endo-method would have been used, the external method is now resorted to without further ado.

I propose to examine the suppurative chronic lesions pertaining to the tympanic cavity. We know that surgical intervention through the auditory canal in chronic suppuration of the tympanic cavity and its adjoining regions cannot go beyond certain limits due to the fact that the diseased parts are beyond reach of the otoscopic examination and consequently beyond reach of the instruments introduced in the external auditory canal. The task of the operator is easy enough if the lesions are localized in the tympanic cavity, but it becomes more difficult in affections of the attic where more or less diffuse necrosis may be suspected. In such cases most operators invade the mastoid antrum and later demolish the external wall of the auditory canal to thus reach the tympanum.

Naturally, since the lesion is confined to the middle ear or attic, the question arises whether it is not a false procedure to attack healthy areas in order to reach the diseased ones where possible injury or complications may accidentally result, such as facial paralysis, lesions of the semi-circular canals, contact with the abnormally located sinus.

The persistence of middle-ear suppuration even after endo-tympanic intervention is due less to unsuccessful operation than to stricture of the bone, which doubtless has a peculiar influence on the evolution of the auricular suppuration. Besides bearing in mind the variations in the normal tympanic cavity and mastoid, we must consider three fundamental variations in structure of the cavity,—diploic, pneumatic and sclerotic.

Sections made of lesions of the middle ear, either in children or in adults, easily explain the persistence of the suppuration because of the spongy character of the tympanic walls, namely, that type which Cheatle has called infantile. Now remembering that in the formation of the mastoid and tympanic cavity, the petrous portion, the squama and the tympanic ring meet and that the petrous bone predominates, we can explain the frequent presence of spongification in the posterior wall of the tympanum and in the posterior portion of the epi-tympanum, because the squamous mastoid wing contains less diploe than any other cranial bones; at its articulation with the petrosa it consists of only a thin cortex.

The separation between petrosa and squama is sometimes permanent at the squamo-petrosal suture. In these cases there is a lamina discribed by Schwartze-Eysell, while in the cavum tympanum there is a crest along the epi-tympanum, described by Rouviere and Canepele.

In the pneumatic structure type the pneumatization is sometimes noticeable in the squama. This has been proved by the fact that even in the seventh month of foetal life, one can find in such cases epi-tympanic cells, especially in the external wall of the attic.

However when the endo- and eso-cranial corticle is very thin, we note that the surface of the bone, be it in correspondence with the tegmen tympani or the tympanic ring alone, will assume the appearance of riddled tissue or at least it will be so thin as to be transparent and easy vulnerable. For this reason in some adults the pus travels upward as it does in the case of children and we understand why chronic suppuration of the ear in such cases of excessive pneumatization would not be cured by endo-tympanic surgical intervention.

The evolution of purulent otitis may also be influenced by the compact structure or sclerotic character of the temporal bone if the eburnization is not caused by osteo-sclerosis determined by otorrhea,and therefore it checks the extension of the process and is rather an anatomical condition. It is certain that even when chronic suppuration of the attic and antrum is limited to the mucosa, if there exist a complete physiological eburnization, the results of exenterating the tympanic cavity are not always favorable, because the cavity as well as the antrum are smaller than normal and in their topography they are atypical and dependent, according to my personal opinion which conflicts with that of Moure.

This does not develop from a process of normal ossification but rather from a deviation in the developmental growth of the middle ear. The numerous differences in opinion regarding the fetal and post-fetal origin of the antrum are thus explained. The attic-aural cavity does not belong to the category of fixed and essential organs appearing at a fixed embryonic time like the internal ear, the eye, the heart, etc. The middle ear is an accessory organ without a fixed period of formation and as such it must depend upon the essential organs and will undergo all the changes depending upon special conditions inherent in the individual but not in the species. This causes a precocious, retarded or even arrested development determined by hereditary conditions.

It is in the period of development that the tympanic cavity as an accessory organ will be closely bound to the normal or pathological process of the temporal bone and can therefore in the same manner be of pneumatic or diploic structure undergoing arrested development caused by untimely eburnization, perhaps due to a progressive bony lesion of rachitic or osteo-malaceous origin.

There has been but little importance attached to abnormal bony formation in the etiologic development of the temporal bone, for which reason the normal anatomy of the middle ear and accessory cavities cannot be systematically described.

Even orientation in non-pathological processes of the bone determines conditions of morbid processes, varying in individuals. The varying tendency of the pars squamosa to unite with the pars petrosa brings about the fact that the epi-tympanic cavity is above the head and neck of the incus and varies in size; therefore in some adults the superior border of the ossicles almost touches the roof of the attic as in children, while normally a space of variable size should exist.

Recent anatomical study shows that the epi-tympanic cavity tends physiologically to increase in size. Occasionally there is arrested development which seems to involve aditus ad antrum. Normally the antral cavity, already completely developed at birth, does not increase. Sometimes the antrum increases in vertical dimension to a diameter of two centimeters. Supposing, then, that normally the highest point of the antral cavity corresponds to a horizontal plane passing through the suprameatal spine, we find that the floor of the antrum is much lower than the aditus and epi-tympanum from which it originates. In the completely developed fetus, therefore, the floor of the antrum corresponds nearly to the plane of the attic.

In course of time the antrum may undergo an arrested development and a horizontal line drawn on a level with the inferior border of the epi-tympanum, namely at the postero-superior angle of the external auditory canal, would then pass either along the floor of the antrum or below it.

We must consider another important, anatomical factor, namely, that the outside wall of the attic analogous to that of the antrum, is formed by the squamous portion of the temporal bone, which may descend so low as to notably reduce the tympanic portion of the cavity and to render the epi-tympanum less accessible. Perhaps this takes place in those cases in which the inferior border of the antrum is above the petro-squamous suture. We are also interested at this point in the bony pneumatization of the external wall of the attic in which small cells have been noticed since the seventh month of gestation.

Greater or lesser development of the epi-tympanum may be favorable or not favorable to endo-tympanic surgery and in cases in which the attic remains small and the cavity antero-posteriorly restricted it may be difficult or even impossible to reach the incus.

Excepting in cases of chronic otorrhea involving the labyrinth, an advance has been made in cases of limited lesions of the aditus ad antrum by emptying the petro-mastoid process, by which the patient is not only spared all possible complications of a chronic suppurative process of the ear but the hearing is thereby saved. Opinions differ regarding the results of this surgical procedure: some claim that the remnant of hearing is not modified, others that it is improved, and others again maintain that it grows worse.

Some years ago Scheibe advised leaving the ossicles intact in the radical operation. Panse and Jansen, shortly after the radical operation become popular, also advised sparing the ossicles. Stacke himself recommended not touching them in certain cases, and later Siebenmann was of the same opinion.

This conservative idea regarding an operation of such destructive character upset the partisans of endo-tympanic surgery.

It was stated that when the lesion is limited to the aditus ad antrum, while hearing is maintained due to air-conduction, and the Gelle test is positive, the aconstic power may be lessened by removing the ossicles, which fact is of great importance if there is any deafness in the other ear.

We must not confound those chronic suppurations having their seat in the antrum with those localized in the tympanic cavity and epi-tympanum. In the first case, the acoustic function being less involved, it is advisable to retain the ossicles; in the second place it is absurd to hope to obliterate the suppuration by keeping the ossicles which are always affected.

I have made numerous histological examinations of ossicles and we owe it to our science to report the results. Eleven cases were examined, in seven of which only the malleus was examined, in two others only the incus, and in two the incus and the malleus.

The ossicles, after removal, were at once immersed in a solution contining 5 per cent formalin and 4 per cent nitric acid. I have successfully used this solution in many experiments on the entire labyrinth of various animals and of man. The complete decalcification required one month or more, depending upon the permeability of the ossicles. After the decalcification, the specimen was washed for twenty-four hours in running water; then stained in bulk with carmine and some with hemotoxilin-eosin when the first staining proved unsatisfactory.

Fluoroglucin was not used for decalcifying because, while it is excellent for normal bone, it is not equally good for diseased bone. After staining, the ossicles were embedded in paraffin to obtain thin sections.

In general it was observed that staining was rarely complete and that even restraining with hematoxylin was not entirely successful. This I attribute to the advanced necrosis of the examined tissues.

Having admitted this, we note that in scarcely any ossicles was it possible to observe the normal structure of the bone and that in slight as well as in marked alterations there was a gradual succession of nearly all phases of atrophy, rarefaction, destruction and necroses of the bony substance, except in one case of tubercular process of the malleus which consisted of voluminous granulation of giant cells situated at the head of the bone and larger than it.

Among the slight alterations we noted a wedged-like appearance of the bony structure, as if the section were made of different pieces glued one on top of the other. This appearance evidenced by the unevenness of the staining of the section, is due to the fact that the plates of one bony trabecula run in an oblique or perpendicular direction to those of the adjacent plate. As we know this appearance is due to prior re-ossification occurring at various times. (Morpurgo.)

Often blood-vessels even in bones not yet necrosed present occlusions. These can be distinguished clearly from normal vessels in which the normal elements of the blood occupy the entire lumen. We have often noticed rather large zones of rarefication in the head of the malleus, or along the handle or in the center of the incus. This rarefication proceeds from the medullary spaces or from the connective sheaths within the small Haversian channels; the medullary substance was reduced to a stroma of wide meshes and no contents; the connective tissue was atrophied and reduced to very light stroma with few cellular elements.

The outlines of the ossicles in this first stage of alteration were not regular but contained frequent fossae and the periosteum of these fossae was either slightly proliferated or retracted. thin and atrophic.

Among the more serious changes we noted were accentuated rarefaction confined not to a limited area but to the entire ossicles, in which trabeculae were detached from one another. Only some of them presented traces of lamellar structure or of visible bony corpuscles.

Often in the midst of this great lamellar detritis the opening of some residual blood-vessels with indefinite walls could be discerned, because they were without staining-fluid and the lumen was entirely occluded by amorphous matter of coagulated blood remaining like caput mortuum, but without presenting the various aspects of thrombosed organization.

We incidentally observe that in the middle ear in general and in the chain of ossicles especially, the process of organization and retrogression is developed more slowly and it is often arrested at an intermediate stage which is followed by a process of mumification—according to our opinion this is due to the above-mentioned occlusion of the vessels, not by an ordinary thrombosis but by a coagulation in which one can distinguish only the hematoid appearance and not the hemosiderin which, as we know, is produced by oxygen which probably in the cases examined was lacking. It is reasonable to assume that the arrest of circulation determined in this manner was the first cause of malnutrition and later on of the necrosis.

In a more advanced stage when no staining of the sections resulted, we observed an *ensemble* of detached pieces which, while they had the form of the ossicle, presented no other structure, resulting from the amorphous substance uniformly but incompletely stained by the protracted staining with hematoxylin. In his large detritus some shape of the Haversian canal can be recognized with remains of the vessel running through it. The scaly structure had entirely disappeared and no trace of bony corpuscles was to be seen.

The changes described at different stages of the malleus and incus, were found in nine of the eleven cases examined. In one of these only we noted a process of bony reconstruction during the active stage, hardly noticeable in the malleus, but pronounced in the incus; in another affected by tuberculosis, the process of re-ossification of the malleus was scarcely noticeable.

In the first of these two cases the malleus showed the presence of osteoclasts toward the margin in a row in front of osteoid tissue. On the other hand the incus showed between the proliferated periosteum and the underlying bone a hematic vessel, like a thin stripe which at one point descended into a relatively large bony fossa in which by clear illumination the various phases of thrombosed organization were visible. To correspond with the thin, fine line of blood-flow, the bone in contact with it was strongly colored and rich in osteoblasts; on the walls of the fossa were many osteophites lined up like elevations from the bone and penetrating the hematic thrombus. This reproduction of bony tissue in immediate contact with bloody effusion under the periosteum or in the thrombus, described above, is evidence, according to our opinion, of a special process of reintegration of diseased bone and deserves further investigation.

One of the eleven cases, at the time the process was discovered, proved an exception to the rule of gradual de-nutrition, atrophy and necrosis of the ossicles; very probably it was only a transitory stage of the disease. Like cases of atrophy and necrosis of ossicles which showed prior re-ossification, it may be assumed in this case that re-integration was not definite but could be followed by a retrogressive change.

We shall now discuss the case of tubercular malleus, having a very large tubercular granuloma which is double the size of the head and protrudes from the bone, like a connective fibrous growth, which swells to form a fleshy button in whose center there are fibrous crypts surrounded by giant cells and other nests of giant cells surrounded by connective tissue. At the periphery, this granuloma presents a large infiltration of decaying cellular elements with nucleus.

Even in this case the osseous substance of the underlying malleus resembles the normal structure according to the arrangement of the trabecula, of the layers and osseous corpuscles. We note two changes of which one consists of the slight coloration of the corpuscles, which, open, appear to be empty; the other of the rarefaction of the trabeculae by penetration of the generative connective tissue.

This generative connective tissue has only in limited degree the well known character of connective osseous tissue, because of few osteoblasts in the confines of the osseous substance, and all the osseous substance of the malleus is affected by mal-nutrition and atrophy leading to necrosis. Even by admitting a gradual substitution of new for diseased bone, we must notice that the bony connective emanates directly from the tubercular granuloma and therefore undergoes the same tubercular process.

We must conclude, therefore, that from the anatomo-pathological point of view any inflammatory process directly involving the ossicles ends eventually in necrosis even though the process temporarily subsides.

All authors who have retained the chain of ossicles in the radical operation agree that the following is necessary to obtain the best acoustic results: 1. That the continuity of the chain should be maintained. 2. That the membrana tympanum should be preserved as much as possible because of its tendency to re-form and to replace even the chain when it adheres to the stapes. 3. That a

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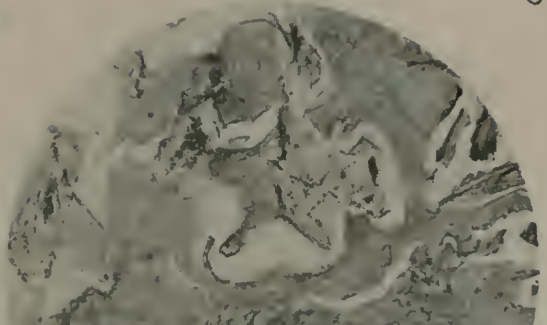
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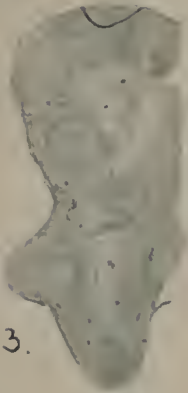
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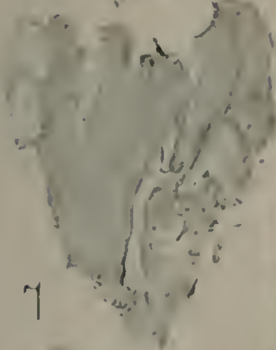
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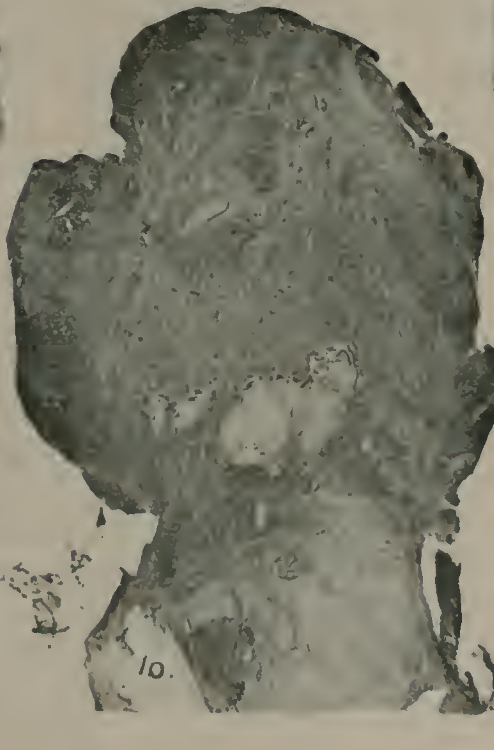
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part of the tympanic ring, and a part of the external attic wall should be preserved as a point of support and source of nutrition for the membrane. (Heath, Bondy, Schwenemann, Botey, Mahu.)

Stacke believes in the success of the radical operation by retaining the ossicles in those cases in which the cavity is not affected, where there is cholesteatoma of the attic, the antrum and aditus. He proves this by passing a catheter through the tube through which the air-current cannot reach the attic. Stacke believes on the whole that by epidermization of the attic, aditus and antrum, if the cavity and membrana are intact, one can avoid tubal re-infection and 50 per cent of cases can be cured. (Bondy, Barany, Urbantschitsch and others.)

Stacke in such operations was able to conserve normal hearing, or nearly so. He, therefore, favored the more radical procedure in cases where one ear was affected by cholesteatoma and the hearing good even if the sense of sound was lost in the other ear, providing the above-mentioned conditions were present.

Stacke does not report much improvement in hearing from this operation when the hearing was already impaired. Not having broken the chain, after attic-antral suppuration is overcome, Stacke is free to undertake ossiculectomy *via* the endo-tympanic route for acoustic results.

The point is whether in those relatively rare cases in which the cholesteatomatous lesion is limited to the antrum and the aditus, one could suppose the ossicles to be unimpaired, even when by otoscopic examination they seem to be sound and the hearing more or less satisfactory. I question Stacke's position in recommending a conservative intervention even when the chain is broken by a process along the incus; thus leaving the tympanic cavity closed by a residue of bone that is unquestionably diseased. Stacke's conservatism goes further; he advises retaining the malleus and the membrana, even if the incus has been expelled in the hope that the tympanum will re-form.

Our long experience in middle-ear surgery does not permit a too great enthusiasm for this conservative-radical method, which in attempting only to save the hearing, may, because of retention of suppurative foci produce a recurrence.

On the other hand the hearing after many classical, radical operations has improved or, at least, not grown worse. We recommend trying the micro-telephone in preference to the tuning-fork and other sounding apparatus. Having tested the hearing before and after operation for the spoken and whispered word, with this instrument, most cases after a certain time showed improvement and very rarely a decrease in sound-perception. I prefer this instrument to all other audiometers because it is a test for perception of the human voice which is most important in our relations. All other instruments fail in this respect because an ear which can perceive musical sounds may at times not hear the voice.

Just as the question of ossiculectomy was considered pro and con, so now the radical-conservative cure is disputed from the auditive point of view. Leaving aside the value of the mechanism of transmission to the labyrinth through the ossicles, that no matter which physiological theory one favors, all admit that the excenteratio cavi tympani produces positive improvement in acoustic perception each time the stapes is made mobile. It is true that in patients who long ago were operated for ossiculectomy in chronic suppuration and whose hearing was improved for voice perception, it could be shown that pressure on the stapes (indirectly by closing the canal or directly with the Lucae sound) resulted in diminution. or even loss of bone-perception for the tuning fork.

Aural surgery, like all other surgery, seems to have become too aggressive in recent years and loses sight of the fact that the radical operation is not always justifiable. Sometimes a lesser surgical intervention will also cure. The radical-conservative operation is not without inconvenience; the time for its cure is not shorter, and its functional results are not superior to those of endo-tympanic surgery. In all chronic suppurations the attic and aditus are not always affected and to sacrifice a sound bone is not justifiable. Long experience shows us that many cases of chronic otorrhea are permanently cured by ossiculectomy with or without destroying the external attic wall and we have noticed that hearing is either not impaired thereby or even improved.

The systematic anatomic pathologic study of the removed ossicles either by endo-tympanic or radical measures has proved that in chronic suppurations the elementary structure of the occicles is always affected even when under microscopic examination they seem to be normal.

We affirm that the classic radical operation is to be preferred to the so-called conservative radical. Although the former is always serious and laborious, it leaves in place ossicles that are of doubtful condition and because of the surgical intervention they are left with less resistance. We do not believe that this much-lauded surgery can replace the radical operation. It is not such an advance in conservative surgery as to be preferable to the more simple and less destructive endo-tympanic method.

The logical method would be to proceed from the endo-tympanic to the radical where the former has been unsuccessful, rather than to proceed inversely.

It were vain to discuss the real results attained by intra-tympanic surgery for chronic suppuration limited to the tympanic and epi-tympanic cavity which heretofore was not cured but often rendered worse by treatment. To Sexton and Ludwig are due the advance in the cure of chronic, purulent suppurative otitis. These authors have suggested as a radical method the removal of the membrana and ossicles since it is known that after suppuration had destroyed the foot of the stapes, a spontaneous cure sometimes takes place conserving sufficiently good hearing.

After the period of enthusiasm had passed, one must admit that clinical data were not always so favorable as was hoped for by intra-tympanic intervention. Even excluding errors in technic cures are not as numerous as was thought.

Failure is due, after excising membrana, ossicles, external attic walls, cicatricial adhesions and granulations, fungous growth of the epi-tympanum through the auditory canal, to the nature of the specific micro-organism causing the suppuration (tuberculosis, ozena, syphilis) and is sometimes due to special dyscrasia (rickets, osteomalacia, diabetes, gout, arterial sclerosis, etc.). Sometimes it is due to abnormal anatomical structure, or to a deficient functioning power of the Eustachian tube, originating in the principal respiratory organs. Some of these obstacles to cure can be recognized through the auditory canal before attempting to operate.

In cases of tuberculosis and ozena it will be well to recall in chronic otorrhea that we should resort to an ample opening of the antrum and aditus and epi-typanum and we should not limit ourselves to exenteration of the tympanic cavity alone.

In such cases diagnosis is relatively easy. History and examination in tuberculosis will show hereditary pre-disposition, or latent or active processes. Otoscopic examination will show an abundant purulent offensive and bloody discharge, without pain, and a vast destruction of bone, facial paralysis and great diminution in hearing. Another aid to diagnosis is the rapid destruction of the ossicles, the easy reproduction of fungous growth as soon as removed, and rapid caries which can be noted by local application of strips of gauze saturated in a solution of glycerine and dermatol. This becomes black because in the process of caries the dermatol (sub-gallate of bismuth) turns black on account of the development of sulphides.

If some of these clinical data are missing to establish tubercular otitis at first examination, and if bacteriologic examination of the pus is negative in the search for acid-resisting granules, we have other means to diagnose the lesion, namely tuberculin test (ophthalmologically and cutaneously). If there is still doubt as to the pathognomonic data, inoculation of the peritoneal lymphatics in the rabbit will give infallible proofs. (De Rossi.) Exenteration of the tympanic cavity is contra-indicated when the suppurative otitis can be traced directly to an ozenic process in the nose, and where the ozena bacillus can be demonstrated.

I have shown previously in typical cases of ozena with suppurative otitis media, that the pathological process is limited to the mucosa lining the tympanum and adjacent areas and does not invade the osseous walls of the cavity and the ossicles, except in long-standing cases. In these, like in the pathology of the turbinates, we may note in the ossicles a rarefaction of the peripheal lamellae with reabsorption of the osseous canaliculae.

Exenteration of the tympanic cavity rarely effects a cure for chronic otitis media when the ozena bacillus persists, and sometimes even the classic radical operation will not successfully cope with the situation unless the Eustachian tube is definitely obliterated.

It is much more difficult to foresee failures due to re-infection of the tube, if the suppurative process persists in spite of exenteration of the tympanic cavity via the canal, or if a relapse occurs even after epidermization.

In the first period of intra-tympanic surgery many unexplainable failures were due to the Eustachian tube, a physiological and pathological link of communication between the respiratory organs and middle ear, which at that time was unexplored Frequently affections of the tube are not recognized until catheterization, when otoscopic examination reveals an excessive tympanic retraction due to tubal stenosis of naso-pharyngeal origin.

In two successive publications (1904-1908) I have discussed the necessity of definite obliteration of the Eustachian tube in auricular intervention for a radical cure of chronic purulent otitis media, especially when the suppuration has no connection with an anatomic anomaly of the temporal bone, including the intra-petrous portion of the tube but due to latero-pharyngeal lesions which prevent the physiological function of the tube.

Any change of the naso-pharyngeal cavity and of the lateral walls and palate, preventing movement of the elevator-palati, the dilatator tubae and tensor palati will close the pharyngeal opening of the tube which normally is always open in spite of some contrary opinion.

Transformed into a closed cavity the canal will augment the virulence of the micro-organisms, which, perchance, are there.

De Rossi, in examining bacteria of the tube of normal persons, found that the normal secretion contained no pathogenic micro-organisms. Therefore, it is evident that the microbes penetrate because of deficient mobility of the tube due to the naso-pharyngeal lesion. The opening of the tube is so necessary that Sohier Bryant claims that inflammations of the middle ear, except in cases of hematic origin, rarely cause mastoid or endo-cranial complications when the tube is open.

Knowing that the tube is divided into two sections, of which the bone forms the accessory vault and the fibro-cartilage a diverticulum of the pharynx, the infection of the naso-pharyngeal cavity will happen through the tube, and above all, through the upper bony part called by De Rossi, the safety space, which always is more or less open even in serious cases of infiltration of the mucous membrane. That this is true has been shown by the fact that also in long-standing otorrhea involving the tube, the liquid injected into the cavity reaches the throat sooner or later.

On this assumption during the pre-operative period I base my treatment consisting of introducing through the cavity strong liquid caustic, with head of patient inclined away from the affected ear: to prevent the flow of liquid into the pharynx I use a catheter with closed end, and tightly close the pharyngeal orifice of the tube.

Since 1904, having based my procedure on these anatomic-physiologic theories and having checked a repetition of otorrhea which is not due to direct lesion of the middle ear and accessory cavities, but to septic matter flowing there from the tube while in the reclining position, I thought best to try the operative method of Segura.

I desisted from this because of the practical difficulty of introducing an electric platinum snare into the tube and because of the acute pain and reflexes resulting and because of the acute suppuration of the ear and accessory cavities which could arise later. I deemed it wiser to cut off the passage from the tympanic cavity to the naso-pharyngeal vault, obstructing by gavano-cautery the tympanic orifice of the tube.

In 1909, I repeated the assertion that it was better to close this tympanic orifice, based on the same anatomic-pathologic principles which showed evidently that the osseous portion of the tube is more involved in the early affections of the cavity while the fibro-cartilaginous portion is more apt to be affected by lesions of the naso-pharyngeal cavity.

We do not admit that in spite of the closing of the tympanic orifice of the tube infection could invade the cavity through submucous tissues being arrested by the isthmus. Infection could also reach the middle ear by the lymphatic circulation, which, however. is poor in the fibro-cartilaginous portion of the tube. This is of greatest value in preparing to close the tympanic orifice rather than the pharyngeal opening.

I was surprised to see in the reports of the German Otological Society which met at Hanover in May, 1912, a communication of Larowitsch, of Jena, in which among many other means of closing the tympanic orifice of the tube plastically, there is no mention of my method. Urbantschitsch, at this meeting, recalled a method proposed by his son, consisting of the introduction of a probe saturated with a solution of nitrate of silver with which the tubal walls are energetically rubbed. In this way he believes tubal suppuration can be cured without a real closure of the Eustachian tube, which he thinks would impair hearing.

The following conclusions indicate when operation by means of the canal is justifiable: (a) In recurring chronic suppurations, when we are convinced that the reaction depends upon retention of pus in the attic. (b) When persistent suppuration of the cavity is not due to tuberculosis or ozena. Removal of the ossicles may result in drainage of possible suppurations in the antrum. (c) When definite caries of the ossicles or the external wall of the attic is determined In chronic otorrhea not due to bony lesions but localized in the soft tissues (chronic purulent otitis media, adenoids, deficient or improper perforation of the membrane and tubal stenosis). (d) In all cicatrized lesions following previous suppurations which have caused functional disturbance by retraction. which fact can also be proved by existing suppuration. (e) In all cases in which it is possible to exclude deep bony lesions of the mastoid, and having freed the cavity from physiological impediments, the tissues may be modified by therapeutics. (Radium and its derivatives.)

I shall not dwell on technic. which is simple and is just as it was taught by the first teachers of intra-tympanic surgery. I insist on the necessity of closing the tympanic ostium which I have described. I also advised the use of a back-cutting chisel which I have used since 1908, in removing the back attic wall. I think this instrument is preferable to the biting forceps, as it makes a cleaner cut and avoids injuring the internal wall of the cavity.

According to some authorities, the use of the forceps produces remote bony lesions because of closing the Haversian canals affecting the nutrition of the adjacent bony tissues.

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LEGENDS TO PLATE.

Figure 1. Malleus with slight changes. Medullary cavity. All vessels occluded. Irregular borders of the ossicles.

Figure 2. Malleus of irregular form with altered periosteum and osseous substance of wedge-like appearance.

Figure 3. Malleus with non-uniform staining of section, with medullary tissue much rarefied.

Figure 4. Malleus with more advanced changes. Osseous tissue scarcely stained in sections, with osseous corpuscles hardly visible.

Figure 5. Necrosed incus.

Figure 6. Incus, trabeculae and osseous corpuscles hardly visible.

Figure 7. Malleus with necrosed osseus residue, partially formed of fibrous tissue.

Figure 8. Malleus formed of group of necrosed particles without structure.

Figure 9. Wedge-like appearance of a greatly enlarged incus. The osseous corpuscles are no longer visible.

Figure 10. Tubercular granuloma with giant cells surmounting the malleus.

Figure 11. Incus with subperiosteal hematoma and process of re-ossification.

PATHOLOGICAL CONDITIONS IN THE EAR, NOSE OR THROAT REFLEX TO DISEASE OF THE TEETH, JAWS OR PAROTID GLAND.

Dr. Clarence E. Ide, Los Angeles.

Accumulating experience has forced upon the writer the conviction that an important chapter of oto-rhino-pharyngology is being neglected in examination and investigation of cases, in discussion of cases, and in medical treatises and papers dealing with oto-largngology. This chapter relates to aural, nasal and pharyngeal disturbances due to lesions of the teeth in particular, and of the jaws or the parotid gland.

The subject of the relation of diseases of the eye to those of the teeth has received and is constantly receiving attention and treatment in medical literature. The same cannot be said of the subject of the teeth as a cause of pathological conditions in the ear, nose and throat. Now that we have the aid of roentgenography in diagnosis this subject can be given scientific rather than guesswork treatment.

This subject has had extreme interest for the writer for several years; hence it was a gratification to him to find a brief chapter devoted to it in Kerrison's "Diseases of the ear" recently published. Thorough search will disclose that something has been written upon this subject from time to time; but if it were receiving the attention that its importance rightfully demands, more attention would be devoted to it in the text-books and monographs which are constantly being published.

So decidedly has this relation between effect in the ear, nose and throat, and cause in the mouth been impressed upon the writer that he has come to doubt whether there be any such condition as, for instance, what could be denominated correctly idiopathic furunculosis of the external auditory canal. Such condition might well be due to infection of follicles by pus flowing from the middle ear, perhaps to diabetic toxemia, but the writer believes that careful search will show a furunculosis or edema, or induration of the soft parts of the external auditory canal, apparently idiopathic, to have origin in a reflex over the trifacial nerve.

These reflex changes are partly vasomotor, partly nutritional. The nerve irritation results in either a failure of nutrition with local necrosis, due to spasm of arterioles, or later a vasomotor paresis with edema and passive congestion,—pseudo-inflammation.

The edema is frequently totally removed temporarily by a hot ear-douche, showing that the condition present is simply one of stasis, passive congestion, which is made to disappear by causing constriction of the local blood vessels. This leaves the skin looking normal; and the hearing is improved in those cases which had complained of dullness of hearing from the suffy condition of the external canal.

Case 3. Miss J. B. H.

The above remark applies equally well to many a case of unrelieved tinnitus (especially that of a pulsating character). eczema or dermatitis of the external auditory canal with intense pruritus, as well as otalgia. It applies also to some cases coming for treatment of throat pain, enlarged, painful and tender submaxillary gland, even cases of suspected frontal sinusitis or antral abscess.

How vast a number of cases, for example, in which pus flows through the external auditory canal for years never develop a furunculosis, dermatitis, eczema or even a boggy condition of the skin therein! One can easily imagine the existence of a series of cases in which this flow of pus, coupled with a reflex irritation which is interfering with the nutrition of and lowering the resistance of the part would result in a furunculosis, brawny induration, eczema or dermatitis of the canal. But more than this, the writer has seen a series of cases in which there was bogginess, or brawny induration, or furunculosis of the canal, with itching or pain, or both, coupled with a scaly condition of the epidermis, with tympanic membrane intact, not due to flow of pus or any pathological condition of the middle ear, but found to be due to reflexes from the teeth or jaws over the trifacial nerve.

There are other obscure cases of discomfort or pain in the ear, or simulating otitis media, as far as subjective symptoms and complaint are concerned, or atypical tinnitus not presenting any pathological manifestations located in the tympanum, which also are due to the same cause.

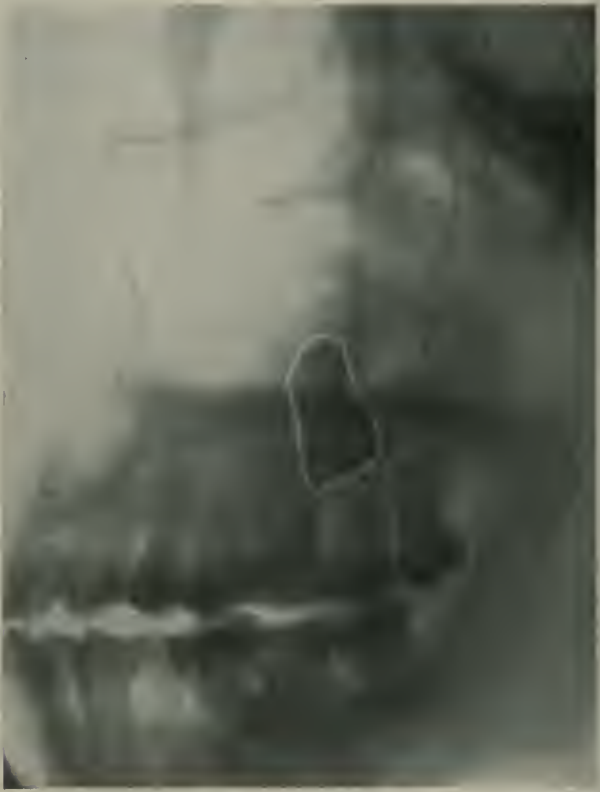
Other cases show symptoms or pathological conditions in the throat which are also found to have the same origin. The throat cases are characterized by pain in the region of the tonsil (patients will report having just passed through an attack of tonsillitis), or tenderness and swelling of the left submaxillary gland, or trismus. One patient reported a marked swelling of the left submaxillary gland after the mastication of each meal. Still another class of cases present some or all of the ear or throat symptoms when the parotid gland is involved, as a late sequel of infectious parotiditis. These symptoms come on sometime after the initial attack of mumps.

Any search which available leisure has enabled the writer to make has failed to disclose any treatment of this subject in medical literature later than 1903, with the exception of some remarks made by Loeb, of St. Louis, at the meeting of the American Medical Association this year, to be quoted below. In 1795 Richter wrote regarding the connection between dental irritation and affections of the eye and ear.

The removal of impacted teeth and the relief of other pathological conditions in the mouth have resulted in the cure of deafness and other anomalies of the hearing-apparatus, according to the reports of dental surgeons. That otalgia may be due to disease of the teeth or to impaction of wisdom buds is common knowledge.

McCurdy, in his "Oral surgery," writes of deafness which at first appeared to be dependent on a grave lesion of the brain, as permanently clearing up after a correction of defects in the teeth. McCurdy writes as a stomatologist, having been chairman of the Section on Stomatology of the American Medical Association 1910-1912.

Speaking of the eruption of the third molar, or wisdom tooth, McCurdy says: "Some most troublesome complications may be associated with the eruption of the molar teeth. This is especially true of the third molar, since *in 50 per cent of the cases there is scant room for the tooth to erupt*, and its course through the alveolus is at variance with the normal, making pressure upon important nerves and resulting in ankylosis of the mandible." This testimony from one who is surely a competent oral surgeon shows in what a large percentage of cases there is trouble from the eruption of the wisdom teeth. Such being the case, and having shown that



Case 4. G. W.

the eruption of these teeth causes disturbance in those organs which interest us as oto-laryngologists, the necessity of bearing this relationship in mind becomes evident.

Joseph G. Turner. F. R. C. S., writing in the *Practitioner,* London, January, 1910, on "General or remote infection of pyorrhea (oral sepsis)," says: 'One infected tooth may be too much for some people, and, in fact, sometimes is, while a mouthful may not hurt others." He lists as resulting from diseased teeth: corneal ulceration, cyclitis, keratitis punctata, secondary cataract. Note that he makes no mention of conditions in ear, nose or throat.

Garretson, quoted by Reber, Philadelphia, in *Ophthalmology,* October, 1904, says: "A diseased tooth may express itself in almost any part of the body." Geo. W. Wright, D. M. D., of Boston, writes in the *Boston Medical and Surgical Journal,* December 5, 1912, on "The teeth and their relation to the body," giving attention especially to tonsillar infection from the teeth. Frank Allport of Chicago, has written on "The relationship existing between ophthalmology and otology, and dentistry." This paper, read before a dental society, was published in the *Medical News,* vol. 84, p. 730.

Kate W. Baldwin, of Philadelphia, writing in the *Jour, A. M. A.,* Jan. 31, 1903, p. 301, on "The teeth as a cause of pathological conditions in the throat, nose and ear," puts this subject on a sound basis. Since then little that the writer can find has been written upon this particular phase of the subject. Attention seems to have been diverted to the relation of eye diseases to the teeth. Numerous pathological states, reflex from disease of the teeth, occurring in surprisingly widely distributed portions of the human anatomy, are reported by those whose province lies in the teeth and jaws especially. Trismus, torticollis and spasm of the masseter and temporal muscles are recorded for instance. It is easy to see how spasm of these two muscles could cause some anxiety in a patient with both mastoiditis and impacted third molar bud.

Dr. H. W. Loeb, of St. Louis, in *Jour. A. M. A.,* September 27, 1913, p. 1205, in remarks following a paper on "Spheno-palatine ganglion," by Sluder, says: "Dr. Haskins, of New York, emphasized the influence of malposed teeth which stomatologists are able to relieve. Many patients come to the aural surgeon with symptoms referable to the nose; the skiagram shows malposed teeth, and all the symptoms referable to the nose are entirely cleared up on removal of the teeth. There are many cases with almost unbearable pain resulting from conditions in the nose; these are entirely cleared up on removal of the teeth, after the skiagram has been taken which shows that these teeth are malposed." This passage was encountered after the preparation of this paper had been completed Its discovery gave the writer much satisfaction.

In presenting this subject it is necessary first to make clear the anatomical nerve-connection between the ear, nose and throat, on the one hand, and the teeth, jaws and parotid gland, on the other. This entails a brief review of the anatomy of the nerve-supply of the organs involved.

Case 6. Mc. L.

A. NERVES OF THE EXTERNAL AUDITORY CANAL AND PAROTID GLAND: (1) Auricularis magnus, from second and third nerves of cervical plexus; crosses sterno-mastoid muscle to parotid gland. Divides into facial branches, auricular branches (connecting with auricular branch of seventh and tenth cranial nerves) and a branch to the mastoid. (2) Auriculo-temporal branch of inferior maxillary nerve. Has two roots with middle meningeal artery between. Passes beneath external pterygoid muscle to inner side of neck of mandible;

turns upward with temporal artery between external ear and condyle of jaw; passes under parotid gland, ending over zygoma in two temporal branches. Has branches of communication with the facial nerve and otic ganglion. N. B. Has branch to membrana tympani. Sends branches to external auditory meatus, articulation of mandible and parotid gland.

B. Nerves of the Tympanic Membrane: (1) The outer surface of the drum membrane is supplied by the auriculo-temporal branch of the inferior maxillary nerve as already stated above. (2) The inner surface of the drum membrane is supplied by tympanic branch of glosso-pharyngeal (see C.)

C. Nerves of the Tympanum: Tympanic plexus (Jacobson's) consisting of: (1) Tympanic branch of ninth cranial nerve. From the petrous ganglion passes through the temporal bone between the carotid canal and jugular foramen; ascends to the typanum, entering by an aperture in floor close to inner wall. Ends in two branches which ramify in grooves on the promontory. (2) Small deep petrosal nerve. From carotid plexus of sympathetic passes through wall of carotid canal to join Jacobson's nerve. Sends branch to great superficial petrosal through inner wall of tympanum in front of foramen ovale. (3) Small superficial petrosal nerve. From otic ganglion through foramen in middle fossa of skull (or through foramen ovale) passing backward to enter petrous bone again external to hiatus Fallopii; receives a filament from the facial nerve and joins Jacobson's nerve to assist in the formation of the tympanic plexus. N. B. The inferior maxillary branch of the fifth cranial nerve sends a branch to the tensor tympani muscle by way of the otic ganglion. The tympanic branch of the facial nerve supplies the stapedius muscle.

D. Nerves of the Eustachian Tube: Tympanic plexus (see C.

E. Nerves of Articulation of Mandible: (1) Auriculo-temboral branch of trifacial nerve, already described. (2) Masseteric branch of inferior maxillary nerve. N. B. The infra-orbital branch of the inferior maxillary nerve to eyelid belongs to the maxillary system not to the ophthalmic.

It is to be noted relative to the above described nerve-supply: That the auricularis magnus nerve of the sympathetic is a means of communication between the parotid gland and the auricular branches of the facial and pneumogastric nerves. The latter supply the stapedius muscle and the external auditory canal and drum membrane; that the auriculo-temporal branch of the trifacial nerve has branches of communication with the otic ganglion, and also sends branches to the membrana tympani, external auditory meatus, articulation of mandible and parotid gland; that the otic ganglion is a means of communication between the auriculo-temporal branch of the trifacial nerve on the one hand, and the tympanic plexus on the other, by means of the small superficial petrosal nerve; that the auriculo-temporal branch of the trifacial nerve supplies the tensor tympani muscle by way of the otic ganglion; that the auricularis magnus and the auriculo-temporal branch of the trifacial nerve communicate with the facial nerve, which supplies the stapedius muscle; that the glosso-pharyngeal nerve has connection with the auriculo-temporal branch of the fifth through the otic ganglion; that the anterior superior dental branch of the fifth nerve sends a branch through the wall of the antrum of Highmore to the nasal fossa (inferior meatus and floor); that irritation of one branch of the trifacial nerve may be transmitted to the Gasserian

Case 6. Mc. L.

ganglion and thence reflected over another branch giving rise to symptoms in the regions supplied by the latter, or regions reached by it through connections with other ganglia.

It is seen then that the auricularis magnus of the sympathetic, the auriculo-temporal branch of the fifth (which supplies the external auditory meatus and drum membrane) and the tympanic plexus, which supplies the tympanum and Eustachian tube, have some sort of communication with the entire fifth nerve which, besides supplying the external auditory meatus and membrana tympani, supplies also the articulation of the mandible, the parotid gland, the teeth and the orbit. It is also to be observed that the otic and Gasserian ganglia form centers from which irritating impulses are sent out over nerves other than those which bring them in, thus originating what we know as reflexes. It is apropos to call attentention here to the relief obtained in glaucoma by injection of the spheno-palatine ganglion, and also to recall that it has been claimed that glaucoma can be the result of spheno-palatine irritation.

Nerves of the Nasal Fossae: (1) The nasal nerve of the ophthalmic division of the fifth cranial nerve enters the nasal fossa beside the crista galli, supplies the mucous membrane of the forepart of the septum by an internal branch, and that of the outer wall of the naris as far as the inferior turbinate by an external branch, ending in the skin of the ala and tip of the nose, communicating with the facial nerve. (2) Anterior superior dental branch of the fifth cranial nerve. From the superior maxillary branch of the fifth nerve in the infra-orbital foramen; runs in canal in anterior wall of antrum of Highmore supplying the incisor and canine teeth; gives off nasal branches to the mucous membrane of the inferior meatus and its floor; communicates with nasal branches from Meckel's ganglion. (3) Vidian nerve, from the superior maxillary nerve to Meckel's ganglion; is joined by a branch from the otic ganglion. It supplies the upper and back part of the septum and the superior turbinate. (4) Spheno-palatine or Meckel's ganglion. A ganglion of the fifth cranial nerve; lies deep in the spheno-maxillary fossa; its sensory root is derived from the superior maxillary nerve by two spheno-palatine branches; distributes descending or palatine branches which are almost a direct continuation of the spheno-palatine branches of the superior maxillary nerve. These branches are: (5) Anterior or large palatine nerve; descends through large posterior palatine canal, emerges upon hard palate at post-palatine foramen, passes forward through groove in hard palate nearly to incisor teeth. From the post-palatine canal gives off inferior nasal branches to inferior turbinate and middle and inferior meati. Internal branches of Meckel's ganglion are distributed to the septum and outer wall of nasal fossa. Here we see Meckel's ganglion playing the same important part as did the otic and Gasserian ganglia in the case of the ear.

NERVES OF THE PHARYNX: (1) Posterior branches of Meckel's ganglion are distributed to the mucous membrane of the upper pharynx and behind the Eustachian tube. (2) The middle palatine nerve of Meckel's ganglion supplies the levator palati and azygous uvulae muscles, soft palate, tonsil and uvula. The above two nerves, the middle and posterior palatine, join with the tonsillar branches of the ninth cranial nerve to form a plexus around the tonsil, the circulus tonsillaris. The inferior maxillary nerve, its anterior division, receiving nearly the whole of the motor root of the fifth, sends branches to the masseter, temporal, buccinator, mylo-hyoid and digastric muscles. Note here the connection of

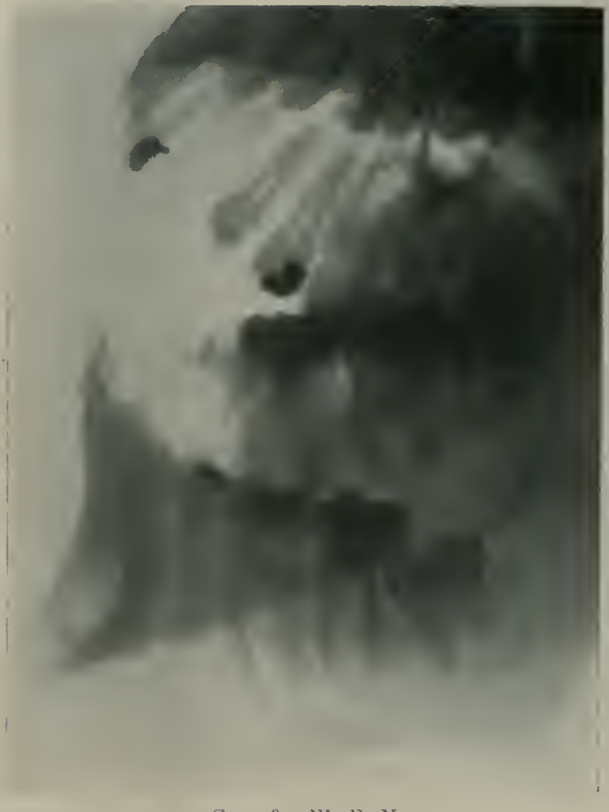
Case 7. Miss M. M.

these muscles with trismus. The glosso-pharyngeal nerve sends branches to the pharyngeal plexus, and also has tonsillar branches. The tenth cranial nerve, its pharyngeal branches, join with those of the ninth cranial nerve to form the pharyngeal plexus. Here again we note the existence of inter-communication between the nerves supplying the teeth and those of the nasal fossa and pharynx; either directly, over the same (fifth) nerve, or indirectly by way of the otic or Meckel's ganglion. There is indirect nerve communication between the teeth, over the trifacial nerve, and the throat by means of the glosso-pharyngeal nerve, the otic ganglion being the means of communication between the fifth and ninth nerves. The blood vessels and lymph channels provide another means of communication between the teeth and throat and ear; but this is aside from reflex conditions. It is easy to understand how faulty eruption of wisdom teeth could irritate the submaxillary gland and ganglion, as this ganglion of the inferior maxillary nerve lies upon the gland and supplies it. The submaxillary ganglion of the inferior maxillary division of the fifth nerve lies above the deep portion of the submaxillary gland, supplying the gland and communicating with the lingual or gustatory nerve. A branch from the chorda tympani connects it with the facial nerve and the sympathetic.

In cases which will be described complaint was made of furunculosis (or local necrosis of the soft parts) edema, serous discharge, induration, itching and tenderness of the external auditory canal, trismus, otalgia, deafness, tinnitus, crackling of drum (clonic spasm of tensor tympani) autophony, enlarged, painful and tender submaxillary gland, throat pain, pain at frontal sinus and nasal voice as in abscess of the antrum of Highmore.

The connection of the different parts of the ear and throat with the teeth, jaw and parotid gland is gathered from the brief description of the anatomy of the nerves treated of above, over which the intercommunications take place. It is apropos here to note a report made by P. de Piesse in the *Ann. de la Policlin. Cent.*, January, 1912. A man suffered from neuralgia of the lower molar teeth which a dentist successively removed without amelioration of the pain. The patient was referred to de Piesse who could find nothing in the dental region, and therefore examined the auditory canal, which he found occluded with cerumen; upon removing this the pain ceased. De Piesse feels that such conditions are frequent. Here is reflex action in the direction opposite to that which we are considering.

The most typical of the cases in this series showed unerupted impacted wisdom tooth-buds as the cause of the reflex pathological condition. Other causes were alveolitis, alveolar abscess, pyorrhea, aveolar necrosis, supernumerary tooth in antrum, hyperplasia of dentin and parodontitis. In some cases the impacted wisdom buds were lying on their side developing toward the root of the second molar. As stated above in 50 per cent of people there is not room at the angle of the mandible for the wisdom tooth to erupt.



Case 9. W. B. N.

It is remarkable that in cases of impacted wisdom tooth-buds the chief complaint is not of pain in the teeth or jaw, but of reflex conditions in neighboring regions, coupled with a stiffness of the articulation of the mandible in many but not in all cases. This condition of trismus is, I believe, present in greater or less degree at some time in the history of each case. Digital examination will always elicit tenderness of the jaw in the neighborhood of the offending tooth. Optical examination will show an active or passive congestion at the same location.

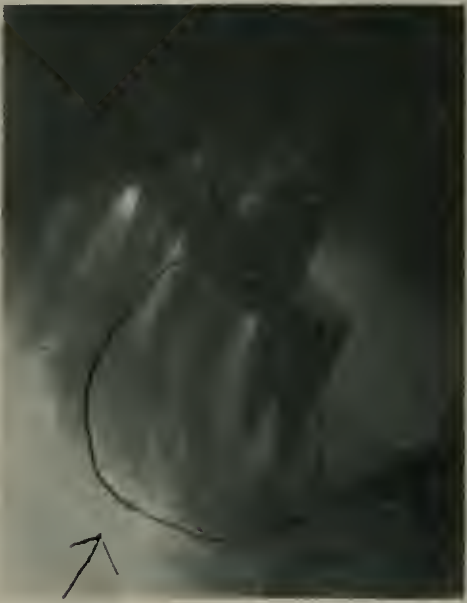
The teeth are to be identified in order to determine whether the wisdom teeth are present. If found missing it is necessary to determine whether they have been erupted and later extracted. It is rather surprising how few patients are able to state definitely whether their wisdom teeth ever erupted and were extracted later. One would expect the discomfort attending the eruption of wisdom teeth to impress itself on the memory more deeply.

In cases where the wisdom teeth have erupted, and later been extracted, the region formerly occupied by the tooth is depressed, some absorption of the alveolar process having taken place. Where no eruption has taken place the level of the alveolar process is higher. In case the eruption is causing disturbance the jaw is tender and the region congested. This congestion is characterized by a purple hue of the mucous membrane over which course enlarged blood vessels.

In one case to be reported there was a supernumerary tooth in the antrum. Each of the cases to be reported was examined thoroughly by all known methods for the cause of the condition complained of before being referred for x-ray examination. Such methods included all those usual in the thorough examination of the auditory apparatus, throat and nose, including caloric and revolving tests of the labyrinth and transillumination of the mastoid and accessory nasal sinuses. The question whether diabetes could be the cause of the pseudo-furunculosis was also considered. No case of hyperostosis of the auditory canal is included, nor are any cases of chronic otitis media. All of the cases came out of a clear sky, so to speak. Reproductions of the radiograms are shown to give a clear and accurate idea of how necessary this aid is to diagnosis in these cases.

It is worth while to report a general experience of difficulty or dissatisfaction in consulting with dentists. They do not seem to be pathologists in any true sense of the term, except in a few brilliant instances. One likes to refer a patient to his or her own dentist; but when the said dentist by a careless examination, or a light remark endangers the successful outcome of much study and effort on the part of the surgeon referring the patient, the latter is not moved to refer other patients. It is hard to find a dentist who will acknowledge that perhaps there exists an impacted wisdom tooth-bud, and that perhaps all the filling and refilling, extracting and treating of teeth would have been unnecessary if the true cause of the patient's complaint had been diagnosed at the start: The writer has finally found it best to refer such cases to a stomatologist for whom he can vouch, and even then to accompany the patient to such oral surgeon for a formal consultation. The stomatologist can then be held to a thorough examination and to an appreciation of his duty to both the patient and the surgeon referring the latter.

For the present, in this preliminary report, the writer would lay greater stress on the fact that in each of these cases, in which some reflex from the teeth was suspected and the patient referred to the radiographer, the plate showed some disease or anomoly of the teeth, than on the therapeutic results obtained, although the latter were satisfactory and what the patients were seeking. Careful investigations of such conditions are of far more value than clinical reports.



Case 10. R. S. Left side.

It is important to note again that these cases do not complain of odontalgia, else they would consult the dentist. Their complaint is of conditions in organs more or less remote from the teeth.

Of the fifteen cases to be described six or 40 per cent were caused by impacted wisdom tooth-buds. One of these had a buried incisor tooth in addition. Four or 27 per cent were due to alveolitis. One had necrosis of jaw in addition. Two or 13 per cent were due to pyorrhea. One of these had a supernumerary tooth in antrum also. One or 6⅔ per cent had hyperplasia of tooth root.

One or 6⅔ per cent had osteitis of condyle of mandible following mumps. One or 6⅔ per cent was due to buried incisor tooth. No cases of hysteria or traumatic neuro-psychosis are included.

Three cases of reflex pathological conditions in the eye will be included among the following fifteen cases.

Case 1: W. W., aged 30. Transfer business. Complained of pain in left eye. Refraction by Dr. Martin, of Phenix, Arizona, resulted in the prescription of weak cylindrical lenses which the patient stated had given no relief. This attack of eye pain was the first which the patient had ever experienced. His general health was excellent On consulting the writer this patient complained of continued wearing-pain in the left eye with, in addition, pain and tenderness below the eye in the region of the tear sac. The latter was found to be normal. There was no epiphora or photophobia.

Examination of the eye gave negative results, except that pressure at the infra-orbital foramen elicited tenderness. Examination of the nose revealed an area of atrophy or maceration the size of a nickel in the left naris, at the anterior extremity of the inferior turbinate. This was white, wrinkled and looked as if it had been macerated. This condition called attention to the nasal termination of the anterior superior dental branch of the superior maxillary division of the fifth nerve. This nasal branch supplies the mucous membrane of the forepart of the inferior meatus and floor of the naris. It also supplies the incisor and canine teeth.

Consultation in this case with Dr. Leppenthien, of Tucson, Arizona, an oral surgeon worthy the name now passed to his reward, disclosed discoloration of the upper left incisor and canine teeth. On drilling up through these teeth, into the neural canal, Dr. L. demonstrated the flow of a serous fluid, not pus, from the canals. It was not a case of true alveolar abscess. Had it been there would have been odontalgia. There was pressure on the nerve by serous exudate which was manifested not by local but by reflex pain in the eye. Here was a case with exudate in the alveoli of the incisor and cuspid teeth, producing a nutritional change in the mucous membrane of the naris, in which complaint had been of pain in the eye sufficiently annoying and wearing to incapacitate the man for his regular work. Later pain and tenderness appeared at the infra-orbital foramen. Treatment of the teeth resulted in a complete cure without further attention from the writer.

Case 2: Mrs. S. E. McD., proprietor of an apartment house, aged 50. On February 23, 1913, both eyes had been the seat of sharp pain, according to the patient's report. Two days later she presented herself at the Good Samaritan Hospital requesting treatment for her eyes. The writer was summoned and found the woman suffering from an attack of episcleritis, left eye. Patient reported that the right eye was first involved; that the condition on that side had cleared up and the left eye then became involved. The left eye showed violaceous hue beneath the conjunctiva, with circumcorneal injection. The lids were boggy and there was photophobia with eye pain.

Case 10. P. S. Left side.

The history of the case and the physical examination showed only that the bowels had been markedly constipated. Analysis of the urine showed an excess of uric acid. A diagnosis of episcleritis both gouty and toxic was made. Treatment consisted of aspirin internally, atropin with hot compresses and dionin locally. These, with electric light baths followed by graduated sprays and body shampoo, cleared up the case so that the patient left the hospital on the fifth day, being discharged from the office as cured two days later.

On June 18, 1913, this patient presented herself complaining of pain and indistinct vision in the left eye. This was about four months following the other attack. No local cause for the complaint was found in the eye. Ophthalmoscopic examination was negative, as was examination by external inspection. Further examination discovered an alveolitis of the upper left cuspid tooth. The gum around this tooth was inflamed and the process was extending across the hard palate.

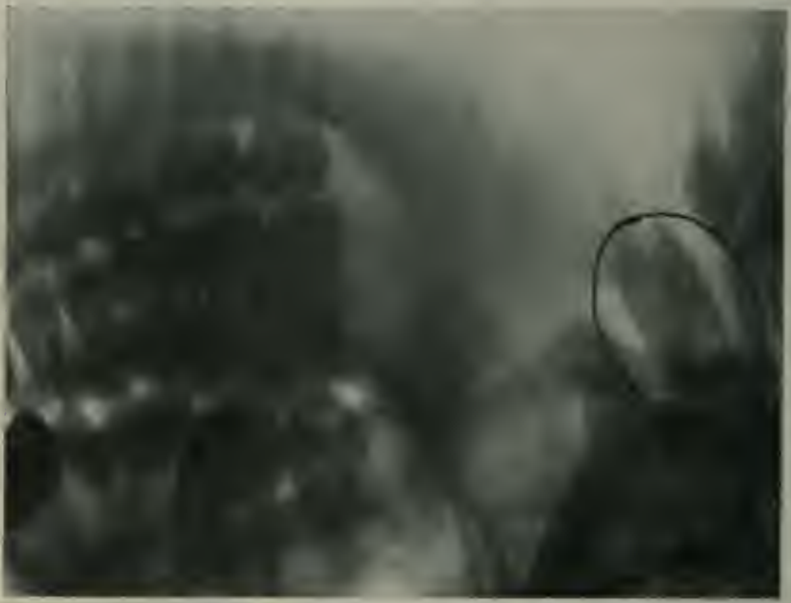
The woman was referred to her dentist, Dr. Brodbeck, who in turn, referred her to Dr. Wilson, extracting specialist. There was a pivot tooth on the cuspid root. Extraction of the root cleared the case up promptly. Pus and blood were oozing from the socket when the writer examined this patient. By the first of the following month (July) the alveolar process had healed, and the eye gave no further trouble.

Whether this tooth was diseased at the time of the first attack, thus being a factor in the causation of the eye condition then demanding attention, the writer is unable to state. No complaint was made of the tooth at that time. The condition of the bowels and urine appeared to show sufficient cause for the condition which presented then.

Case 3 (see radiograph): Mrs. J. B. H., March 9, 1913, complains of pain and swelling of the right external auditory meatus and swelling and soreness of the right lower eyelid. Patient states that a "boil" in the auditory canal ruptured two weeks ago. At present there is tumefaction of the canal, but the appearance is not typical of furunculosis. The tissues of the canal are boggy, shrink under the application of adrenalin. There is no definite furuncle, only the edematous or boggy condition. Incision fails to reveal pus. The right lower eyelid is edematous. There is an area of necrosis near the inner canthus. It is not hordeolum. The necrotic area is evidently the result of nutritional disturbance, for the appearances are not those of inflammatory change.

Examination of the mouth shows congestion of the right lower jaw at the anterior bicuspid and wisdom tooth. The jaw is painful at these locations. Patient states that it has been difficult to eat or open the jaw for weeks. The right ear drum is normal and there is no evidence of disease of the middle ear or Eustachian tube. The patient was referred to Dr. Low for radiograph which showed disease of the alveolus of the anterior bicuspid before mentioned, and the jaw surrounding it. Dr. Shaw, oral surgeon, found on extracting the tooth that the alveolar process was diseased and that an area of necrosis surrounded it. It was necessary to gouge out the tooth which came out in two portions, the middle part having become softened. The crown was extracted and then the point of the root. Necrotic bone was also removed. This patient had become badly run down. She now began to improve and was soon discharged.

In this case the reflex process exercised a selective effect over the infra-trachlear branch of the nasal branch of the opthalmic division of the fifth nerve, which supplies the integument of the lids and the caruncuala lacrimalis as well as over the auriculo-temporal to the external auditory meatus.



Case 11. Miss M. T.

A letter recently received from the husband of this patient is interesting as confirming the supposition that the conditions which the case presented were reflex from the diseased teeth:

October 4, 1913.

My Dear Doctor: For your information I wish to say that Mrs. H. has had no trouble to speak of since you treated her. Recently, that is two months ago, she suffered more or less pain in the eye and ear, and we feared for several days that she would likely suffer an attack similar to the one had at Los Angeles last spring. We followed your general theory and advice and upon having a troublesome tooth removed the pain, swelling, etc., immediately disappeared. In short, we are more convinced than ever of your idea that the trouble was caused by bad teeth rather than by trouble with the eye or the ear. Your belief, in other words, is certainly confirmed in the case of Mrs. H."

Case 4 (see radiograph): Geo. W., merchant; age 52; March 6, 1913, complains of pain in right ear following a "cold." Discharge from nose has been yellow, but not profuse. On examination of nose find mucous membrane red and boggy. External auditory canal slightly tender. Drum slightly reddened, not bulging. Eustachian tube inflates easily. Hearing on that side dull. Autophony present. On night of same day had attack of severe pain which he referred to the ear. This was followed by a discharge of bright fresh blood from the external auditory canal..

March 7, seen at home. Blood-clot in canal; not much pain; Eustachian tube inflates; naris tender to catheter.

At each visit the Eustachian tube was treated with Yankauer's applicator, argyrol in 50 per cent solution being used.

March 8: No change; not much pain. March 10: No new development; Eustachian tube inflates readily. March 17: Return of pain last night. Eustachian tube open. Patient had been comfortable during the intervening week. March 19: Now complains of pain in the ear canal. Drum not red, but incised it as a precaution, obtaining no discharge. Irrigated middle ear with canula and Yankauer bottle. March 20: External auditory canal boggy, edematous. Trismus. Spasmodic pain at articulation of mandible. Condition evidently reflex. March 22: With each examination the matter of diseased teeth had been looked into. Patient had reported teeth sound and examination confirmed this opinion. No tenderness of alveolus had been elicited. To-day, however, find wisdom tooth on same side as affected ear, in upper jaw, loose. Ear canal boggy. That night there was return of the agonizing spasmodic pain (tic douloureux). It was characteristic of this pain, which occurred in paroxysms like neuralgia or neuritis, to come on at night, but not every night. March 23: Convinced the condition was due to irritation of fifth nerve by diseased teeth. Wisdom tooth very loose, second molar now loose also. Chewing is painful. Pain radiates down right side of throat. Radiograph requested. March 24: Plate shows alveoli of first and second molars diseased, with a supernumerary tooth in the antrum. Transillumination of antrum had been negative. The condition of the antrum had no effect in this case at any time.

The second molar and wisdom teeth were extracted, the patient refusing to submit to operation for removal of tooth from the antrum. The two teeth removed showed that their alveoli had been diseased. Removal of these two teeth by Dr. A. A. Shaw brought about cessation of all symptoms, the antrum remaining quiet permanently.

Case 5: Mrs. B. L. K., aged 23, March 24, 1913. Has had trouble with right ear since September, —— six months. Complains of throbbing and slight deafness; had no nasal trouble in September; no grip. There is no history of family deafness.

Case 13. J. O.

Examination showed absence of naso-pharyngitis. There is absolute occlusion of right Eustachian tube at isthmus. Right drum is retracted, there being congestion along the handle of the malleus. For years has had attacks of fainting—not Meniere's symptom complex. There has been no vertigo, nausea or vomiting. The throbbing in the right ear has been constant for the last month. This is distinct from ordinary tinnitus which comes on in attacks when she is tired.

March 28: Rinne, negative in right ear. Electrolysis with Duel's bougie to relieve occlusion, successful. To-day, C 512 fork is heard 20 sec. by b. c. 15 sec. by a. c. Does not hear Dench fork. Revolving and caloric tests show labyrinth normal.

March 31: When tinnitus is present it ceases on the employment of the Valsalva method of inflation. Right ear now hears whispered voice "66" and "22" at 18 ft. Watch, right ear, 5 ft. Acoumeter 20 ft. both ears. Right Eustachian tube inflates normally. Hearing improved. Tinnitus nearly disappeared. Rinne positive.

April 4: All conditions improved except throbbing synchronous with heart beat. Strontium bromid. gr. 15, t. i. d. Referred for radiograph. Plate showed lower right wisdom tooth impacted. It was developing against the root of the second molar. Referred to oral surgeon, Dr. A. A. Shaw, who extracted the second molar, against which the wisdom tooth was erupting. This was done because the patient refused to spend any time in the hospital, which was necessary for removal of buried wisdom bud. Patient reported relief from this procedure, but that this relief was not complete was proof that the removal of the tooth extracted was not the procedure really demanded. Later the patient reported that there was still some of the throbbing. Referred to Dr. Felsenthal for removal of the impacted wisdom bud.

Case 6 (see radiograph): Mr. A. F. McL., aged 25. September 3, 1912, came with impacted cerumen and right Eustachian tube occluded, following bathing at Bimini baths. Cerumen was removed, Eustachian tube was bougied and inflated, and application made with Yankauer's applicator.

June 6, 1913, he complained of ears. Says the canals are stuffy and sore. The right external canal is boggy and closed completely with a mass of wax and dried cerumen. Left canal is boggy and has a scab of exudate, but is not completely closed. Both canals are swollen and scaly. Drums are dull; both Eustachian tubes inflate easily. Has had yellow discharge from nose. Transillumination shows shadow over right antrum, but no discharge is secured on washing the latter.

This patient was referred to Dr. Low for radiograph. The plate showed the left upper wisdom tooth impacted. Patient was referred to Dr. Louis Felsenthal, who extracted not only the impacted wisdom tooth, but also the three other wisdom teeth, because of the scanty room at the angle of the mandible.

June 30, 1913: Find external auditory canals filled with dried serum, and cerumen deeper in. The canals had been painted with pure ichthyol. Removal of the scabs showed healthy, pink, smooth skin. Right drum had been reddened and macerated by the retained exudate. Eustachian tubes were patent. The conditions present promise good results from the extraction of the wisdom teeth. Later the patient reported complete relief.

July 7, 1913, this patient reported that he had received a letter from home which bore the information that two sisters and a brother had found it necessary to have wisdom buds extracted because of insufficient room at the angle of the mandible.

Case 7 (see radiograph): Miss M. M., aged 35. December 2, 1912, referred by Dr. Frank Miller, complaining of pain in region of left ear radiating to left temporal region, for three weeks.

Case 13. J. O.

Examination of external auditory canal, membranum tympani, middle ear and Eustachian tube negative; hearing not impaired. During taking of history patient stated that she had been having trouble with the left posterior bicuspid tooth; dentist had been treating it, having removed and replaced a gold crown. The history of the case was not interesting except for the statement that there had been no menses since the age of 18. Father died of apoplexy. Patient was operated for pterygium in San Francisco eight years ago.

Patient's mouth shows no wisdom teeth. Later developments showed that all four must have been extracted.

Jaw-bone is diseased internally and externally to the left lower bicuspid tooth. Tenderness is elicited on pressure and there are evidences of congestion of the soft parts covering the bone, periosteum and gum. Referred for x-ray. The radiographer volunteered the information that the plate suggested left frontal sinusitis. This was not present, however. The plate really showed the left lower posterior bicuspid tooth with its alveolar process diseased. This tooth was extracted by Dr. Shaw, the root showing hyperplasia. (peridontitis).

The patient later had neuritic pain in left side of neck and scapular region, lameness in the back; frequent micturition, and had a uric acid storm. Here is a case of lithiasis with all nerves of the head and shoulder irritated more or less. The disease of this tooth was the exciting cause for the pain in the ear and temporo-malar branch of the superior maxillary nerve which brought her for examination.

Case 8: Mr. F. L. M., Nov. 20, 1912, aged 25; complains of pain and swelling in his right external auditory canal. Says he has had as many as 200 "boils" in his ear canals.

Examination shows right external auditory canal to be tumefied, boggy, red. Not characteristic of furunculosis, however. There must be some constantly acting cause for so many attacks of so-called boils. He had same condition in the left canal a few months ago. Drums, Eustachian tubes and middle ears found normal. Questioning elicits the fact that the teeth of both sides are tender, jaws stiff, and that he has been constantly under the care of a dentist

Examination of mouth shows abscess of wisdom teeth. Referred for radiograph to Dr. Albert Soiland. Latter shows four impacted wisdom tooth-buds, the lower one on the right side having fallen forward, was developing toward roots of the tooth in front second molar. This explains the constant demand for treatment by his dentist of the neighboring teeth which had been filled and refilled, treated and retreated.

The patient's dentist, Dr. Allin, was so unwilling to acknowledge that the impacted wisdom tooth-buds were at least probably the cause of the aural disturbance that the patient failed to see the importance of having the buds removed. He passed from view so no further report can be made.

Case 9 (see radiograph): Mr. W. B. N.; age 26, July 28, 1913 For eight months has had a swollen, tender submaxillary gland, left side. Hurts most and swells after eating. Dr. Carmody, of Denver, treated him previous to May. Left naris was operated on by Dr. Carmody in 1911. Had error of refraction also. Three weeks ago had an attack of tonsillitis.

He had measles and mumps. Gonorrhea once. No trouble with ears. Examination of naso-pharynx shows presence of adenoids. Left mandible is tender at seat of wisdom tooth-bud. Con gestion at junction of gum and cheek at this point. Referred for radiograph. Plate shows left lower wisdom tooth-bud impacted and developing against neck of third molar.

The submaxillary ganglion of the inferior maxillary division of the fifth nerve lies against the submaxillary gland and supplies it, as stated above. The ganglion communicates with the lingual or gustatory nerve. A branch from the chorda tympani connects it with the seventh nerve. It also communicates with the sympathetic. These communications explain the activity in the region of the gland at the time of masticating food. This patient was referred to Dr. Felsenthal for removal of the wisdom bud.

Case 10 (see radiograph): Mr. R. S., age 50; merchant. May 25, 1912. Referred by Dr. Frank Miller; complained of pain in the right side of throat. On examination tonsils were found hypertrophied and much diseased—ragged and crypts filled with detritus. At the request of the patient and his physician tonsillectomy was done. There was considerable hemorrhage, but this was controlled without difficulty. The man had long been "rheumatic."

Case 13. J. O.

After a time (July 18) the patient returned complaining of recurrence of pain in the throat on the same side. Examined carefully for evidence of adhesions, finding no condition to explain the pain complained of. Complaint of pain in the right ear. Examination furnished no explanation of this pain. General condition was looked into and antilithic treatment prescribed by Dr. Edelman. This gave relief for a time, but the man returned on August 2, complaining that the pain had extended so as to cover the entire right side of the head. Here was a typical trifacial neuralgia. Previous to this time the man had been advised to have his teeth carefully looked after, which he had done to the best of his knowledge and ability, the dentist reporting no disease of the teeth. When he finally came, suffering terribly from the tic douloureux, emaciated by the agony and demanding relief, and when careful examination revealed nothing in nose, throat or ear to explain the pain, he was referred to Dr. Soiland for plate of both sides of the skull. When the plates were delivered and examined carefully by a dentist they presented evidence of diseased alveolar processes in seven different locations. Dental examination without the x-ray had evidently failed to discover the true condition present.

Treatment of the beginning pyorrhea, or alveolar inflammation, brought great relief and return to normal weight and general condition. However, the man still has pain when gouty attacks seize him; this because he will not follow the regimen suited to his physical habit.

Up to the time that the tonsillectomy was done the pain had been located in the throat only, and the man declares that he has felt like a different person since the tonsillectomy. He had evidently been much poisoned from the tonsils.

Case II (see radiograph): Miss M. T., age 27. February 21, 1913. Last July was ill for two weeks with mumps. At that time there was no involvement of the ear canals, except that they were scaly. This scaly condition was deep in the canals. She could not open mouth to eat or drink while having mumps, according to her report. No pus appeared anywhere at that time. She never had furunculosis of the canals at any time either previous to or following the attack of parotiditis. Only the scaly condition had shown, with a little itching and no exudate.

Has never had toothache. Has a full set of beautiful teeth. Has had attacks of sore jaws, swelling in the neck anterior to the sternomastoid muscle, and "cancres" in the throat. These attacks of cancres would last from two to three days to a week. Had one of these attacks just before the attack of mumps. Examination showed the ear canal to be boggy, scaly and tender. Identification showed the full number of teeth. Drum membrane normal, hearing normal. There is passive congestion in the fauces with tenderness of the ramus of the left mandible. Advised radiograph, when thorough examination discovered nothing additional. The plate showed areas of disease in the ramus of the left mandible near the condyle.

By April 7, the right external auditory meatus had recovered under treatment with pure ichthyol. Complained at that time of the left side. Has had a return of the swelling in the neck since here last. Mandible still tender at the angle. Nose and naso-pharynx absolutely normal.

This case was referred to Dr. Felsenthal for treatment; but her father being very ill, the matter hung fire for some time. Treatment with iodin ointment, iodides internally, etc., was followed during the interval of waiting. Finally the case passed from view.

The condition in the ramus of the mandible was evidently the sequel of the attack of parotiditis. The ear canals were much tumefied and tender when the condyle of the mandible was moved in mastication. Trismus had existed to a greater or less degree from time to time. The radiograph showed a perfect set of teeth and repeated examination failed to discover any anomaly in the middle ear. The waiting-policy adopted by the patient on account of the illness of her father evidently allowed Nature to bring about a cure with the little assistance which could be given by the prescription of external applications.

Case 14. H. H.

Case 12: Mr. J. P. D., age 50. September 4, 1913. Three weeks ago began to be troubled with soreness of the throat on swallowing. The "cords" (glands) of neck were sore. This continued five days and then disappeared. Last week the same condition returned. There was no toothache.

Examination revealed tenderness of the right submaxillary gland with slight enlargement. The right tonsil and same side of the soft palate were red and congested. Thorough search failed to discover any evidence of peritonsillar inflammation.

In spite of the redness of the tonsil and palate the throat did not appear boggy or the seat of a real diseased condition. The tonsil had been operated upon at some time with the guillotine, the remaining tonsillar tissue being fibrous and adherent to the pillars, so that it could not be separated from the pillar in searching for abscess. Patient has four wisdom teeth. Had "ulcerated" tooth (second right upper molar) extracted three months ago. Now the next tooth back (wisdom) is tender. Larynx normal except for a puerile epiglottis.

Referred to his dentist, Dr. Reed, who found disease of the tender wisdom tooth, treatment of which cleared up the condition in the throat.

Case 13 (see radiograph): Mr. J. O., age 17. December 12, 1912. Complains of pain in the ears, more or less indefinite in location, and character, sometimes evidently located at mastoid region. Mastoids transilluminate well with Mosher's transilluminator. There is bilateral chronic catarrhal (moist) tubo-tympanitis with left Eustachian tube closed by swelling of mucous membrane. There is marked deviation of the nasal septum with immense middle turbinate crowded between the septum and lateral wall. Vertical diameter of the nares short.

During December the aural condition was treated with good success, the Eustachian tubes remaining patent, and the hearing becoming normal. On January 3, a submucous resection was done. This gave relief, but there was still complaint of the pain, ache, discomfort just back of the mastoid region. On January 8, a partial middle turbinectomy was done for the purpose of supplying greater air passage. Relief followed these procedures, but this was not complete.

On July 7, refraction (retinoscopy) was performed. There had been much complaint of pain at the glabella and occiput. Search failed to disclose any evidence of intra-cranial involvement or sinusitis, except that the nasal accessory sinuses did not transilluminate perfectly well.

Refraction revealed the following: Paresis of the external rectus amounting to 2 deg. Retinoscopy showed: O. D. plus .25 with plus .25 at 120. O. S. plus 3.00 with plus .50 at 120. A prism was prescribed for the purpose of determining whether there was an element of muscular strain in the causative factor of the head pain. There was much relief from this formula, but the ache at the back of the head did not disappear.

The teeth had been examined from the first, but the boy, being a Greek newsboy could not see the connection between the teeth and the pain complained of, so he failed to go for x-ray examination. Finally it was demanded in strong enough terms to produce results. Examination of the mouth had shown absence of wisdom teeth. Other teeth were missing, supposedly having been extracted.

The radiograph, taken September 5, 1913, showed that the upper wisdom teeth were erupting normally. But in the upper jaw, right side, there is a tooth lying buried above the roots of the lateral incisor, canine and anterior bicuspid. This is the middle incisor with its cutting edge pointing forward. Below on the left side the wisdom tooth is developing against the root of the second molar, having caught under the crown at the neck. The wisdom tooth of the right side below is missing, probably having been erupted and extracted. A tonsillectomy had been attempted on this case before it came to me. The operation was not a success.

Here is a case in which tonsillotomy, submucous resection, partial turbinectomy, and refraction were performed for the relief of pain and ache, which were distressing even to a newsboy. Relief was gained, but the real condition at the root of the matter existed in the teeth. It was necessary to eliminate the various possible causes of the distress, in order to make an absolute diagnosis. This was done, the various procedures being carried out, while all the time there was effort to induce the boy to go for radiographic examination. The boy was referred to Dr. Louis Felsenthal for further relief.

Case 14 (see radiograph): Mr. H. H., age 26, November 11, 1912, complains he has had partial deafness in both ears for one week. Has had "ear trouble" off and on for several years. Dr. Hill Hastings had operated on nose some time before. With each cold that he has the tonsils "swell up." Had scarlet fever as a child. Grip and colds since then at times. Has had slight discharge from ears for the last week, more from the left. Throat is hoarse all the time. Examination shows deflection of the septum: but he has plently of air way. On account of condition of tonsils and their influence on the auditory apparatus tonsillectomy advised, which was done at the Good Samaritan Hospital. Result perfect. The ear condition was treated and cured, such improvement being assured by the removal of the tonsils.

On November 1, 1913, came complaining that the external auditory meati were "stuffy," the head feeling "stuffed up" also. Has had headache for two days. Examination shows the nose, naso-pharynx and larynx normal. The Eustachian tubes inflate perfectly. The external auditory meati are boggy and scaly, but not inflamed. There is tenderness at the infra-orbital foramen, left side. The left second upper molar has been giving trouble. The right sub-maxillary gland is tender. The left lateral incisor tooth is painful. Referred for roentgenograph. Plate shows the lower right cuspid impacted below three incisors and lying lingually to their roots. Referred to Dr. Felsenthal for further investigation and treatment.

Case 15: Mr. R. C. B., January 23, 1913, came to have left ear examined. Dr. Welty, of San Francisco, had done radical mastoid operation, with skin grafts, and advised patient to have the ear examined every three or four months. The canal and cavity have been itching.

Examination shows the skin to be in good condition. Shed epidermal scales were removed with H_2O_2 and curette, and tr. benzoin comp. applied. This patient reported for such examination and cleansing a few times. On September 25, 1913, he came fearing that pus was forming in the cavity of the operated ear. He had been allowed to go into the ocean with cotton saturated with vaseline (sterile) in the ear canal, provided he would not dive or get his head under water. On this date no untoward condition was found. On October 9, 1913, a smear obtained from the cavity showed a few staphylococci and a few encapsulated diplococci, no more than would be found in any canal. On November 7, 1913, this man came with complaint of much moisture in the operated cavity. The skin lining the latter was found normal. No break in the skin was ever found, but at this time coagulated serum was removed from the canal. The writer became convinced that a reflex could cause such a discharge of serum in an ear which had been operated as well as in any other. So the man was referred for radiograph. Plates showed right lower wisdom bud impacted, unerupted, and lying on its side with cusps pointing forward.

Case 16: Miss A. T.; nurse; age 23; irritation of the right eye. Examination showed the trouble located in the right caruncle, the conjunctiva being normal. The caruncle appeared irritated. There was no evident secretion at the canthus. With the loupe the caruncle presented the appearance of vesicles at the roots of the lanugo hairs. Argentide solution was rubbed into the caruncle and argyrol ointment prescribed.

Inquiry elicited the information that Miss T's dentist had just told her that her teeth needed treatment. This inquiry regarding the teeth was made because the eye condition was anomalous, not presenting characteristics of any condition belonging to the eye inflammations.

Dr. Lane, the patient's dentist, reports finding "blind abscess" of the lower right second molar. The upper right second molar also demanded treatment. Treatment of these conditions relieved the eye symptoms promptly. It was interesting to note that the first dental treatments resulted in some irritation of the eye.

Another interesting point is that reflex conditions in the eye from diseased teeth are just as apt to result from tooth disease in the mandible as from that in the upper jaw.

Case 17: Mr. W. C. A., age 34. December 1, 1913: Right submaxillary gland tender and swollen. Complains of expectorating blood-stained sputum; fears tuberculosis of larynx; has had pain radiating from lower right wisdom tooth, which is relieved by pressure on jaw. At the age of 3-4 had pneumonia. Had bronchitis and pleurisy three years ago. Has had frequent colds. Two weeks ago had an attack of bronchitis, followed by the bloody expectoration which constitutes his chief complaint now.

Examination shows deflection of the septum to the left against the inferior turbinate. Naso-pharynx normal. Pharynx shows irritation. Patient smokes considerably. The tonsils and larynx present an absolutely normal appearance. He has a lingual varix from which the bleeding has perhaps taken place. Next to the expectoration the pain radiating from the lower right third molar was uppermost in his mind. Investigation showed this tooth leaning in toward the tongue very markedly. The jaw in its immediate neighborhood is tender and aching.

Diagnosis of irritation of the inferior maxillary nerve by the roots of the malposed wisdom tooth, manifesting itself as the radiating pain, and tenderness of the submaxillary ganglion and gland.

Referred to Dr. McLeod, his dentist, who, in turn, referred him to Dr. A. A. Shaw for extraction. On December 18 reported entire and prompt cessation of the pain and bleeding. Submaxillary gland still slightly tender.

This man was deeply worried by the bloody expectoration and the "pain in the throat." The only pathological lesions discoverable in the nose or throat were the deflection of the septum and the lingual varix. The conditions complained of were, no doubt, due to the irritation from the malposed tooth. This includes the lingual varix which was passively congested as a result of the irritation over the inferior maxillary nerve.

Case 18: Mr. E. W., age 29. (December 18, 1913.) For some time past the right ear has been the seat of paroxysms of pain which were short-lived. This ear is sore. When the outer part is touched or pressed upon, "a hurt goes through the head." This condition has existed off and on. Four or five days ago the soreness or pain that existed disappeared suddenly one evening after going to bed. When 8 years old had typhoid. Nine years ago had anterior poliomyelitis—the right arm is almost completely paralyzed.

Examination shows the drum to be normal. Normal vibration with Siegel. The canal is normal in appearance; is tender to pressure at one spot, "needle prick." Stroking down the tissues over the styloid process causes a hurt which radiates up into the ear canal. Passing the speculum into the canal does not hurt but rather "feels good." Hearing is absolutely normal and acute. There has been no earache, no otitis media or discharge. Hears all forks including Dench's; Weber equal, Rinne positive.

He has three wisdom teeth erupted during the last few years. There is no sign of the right upper wisdom tooth. It has never erupted. No extraction of a tooth in that region. The lower jaws present a white macerated appearance at the region of the molars. There is tenderness of the jaw at the seat of the right upper wisdom tooth.

Diagnosis: irritation of ear canal and mandibular articulation by unerupted wisdom tooth-bud. The symptoms of trismus has existed in this case from time to time. The paroxysm of cramp-like pain in this case have been typical. Here again the patient had never had any intimation that all was not well with the teeth. Said his teeth were in perfect condition according to the report of his dentist.

Referred to Dr. McCoy who found (by x-ray) and removed a very large impacted wisdom tooth-bud, upper right.

1121 Brockman Building.

Hemorrhage From Air Passages. A. ZOGRAFIDES. *Monatschr. f. Ohrenh.*, Heft 2, 1913, p. 385.

One case of vicarious menstration from the larynx, two of spontaneous hemorrhage from the trachea and one of hemmorrhage from the right arytenoid cartilage are reported. ED.

SQUAMOUS EPITHELIOMA OF THE MIDDLE EAR AND MASTOID.

Dr. L. J. Goldbach, Baltimore.

Mrs. J. D. D. consulted me January 30, 1912, and stated: "I have a discharge, growth and a sinus in the back part of my left ear, and for the last year I have been suffering pain off and on. From the latter part of November, 1911, the pain has been excruciating and almost unbearable; at times dizzy spells with the head so tender that I could not rest it on a pillow. On December 12, something broke behind the ear, and since then I have had some relief." Otoscopical examination revealed a protruding polyp, bathed in an offensive, purulent discharge. A probe placed in the sinus at the tip of the mastoid led me into the canal wall, at the osseous and cartilaginous junction. The polyp was grayish, rather hard to palpation and completely filling the canal. Pressing the polyp inward I could produce vertigo, with a tendency to fall towards the right side. No tenderness on pressure; temperature 99.1°; pulse 70; respiration 22.

Her past history is of no special interest. At the age of 8 years, she had scarlet fever, leaving her with a discharging ear. The physical condition of the patient is that of a well-nourished, robust woman, suffering from no physical ailments, and "well and hearty, until this ear started to give me trouble." I ordered 10 per cent formalin irrigations, ten drops to half a tumbler luke-warm water, and advised her to return for a radical mastoid operation.

She entered the Presbyterian Hospital February 10, 1912. Her physical and urinary examinations were negative. The blood-count showed a leucocyte count of 12,500; the differential—polymorphonuclear 73, small mononuclear 17, large mononuclear 14, eosinophiles, 5.

On February 1, 1912, under ether anesthesia, I removed the polyp. It bled freely and was fibrous, giving the impression of a fibrous angioma or sarcoma. A radical mastoid was performed. The bone was sclerotic, with apparently no air cells. After removing the osseous canal wall and curreting the middle ear and antrum, I encountered very free bleeding from the granulations, giving one the impression of a sarcoma. After as thorough a removal of the granuloma as possible, the wound was cauterized with nitrate of silver stick, gauze drain inserted, head bandaged and patient returned to bed. The patient rallied nicely with no evidence of shock. On February 9, she complained of vertigo and vomiting which disappeared after dressing the wound. February 25, the patient returned to her home. The mastoid wound healed, but a slight oozing from the canal remained. Since the operation, patient has been free from pain and "feeling fine." The pathological report was fibro-angioma.

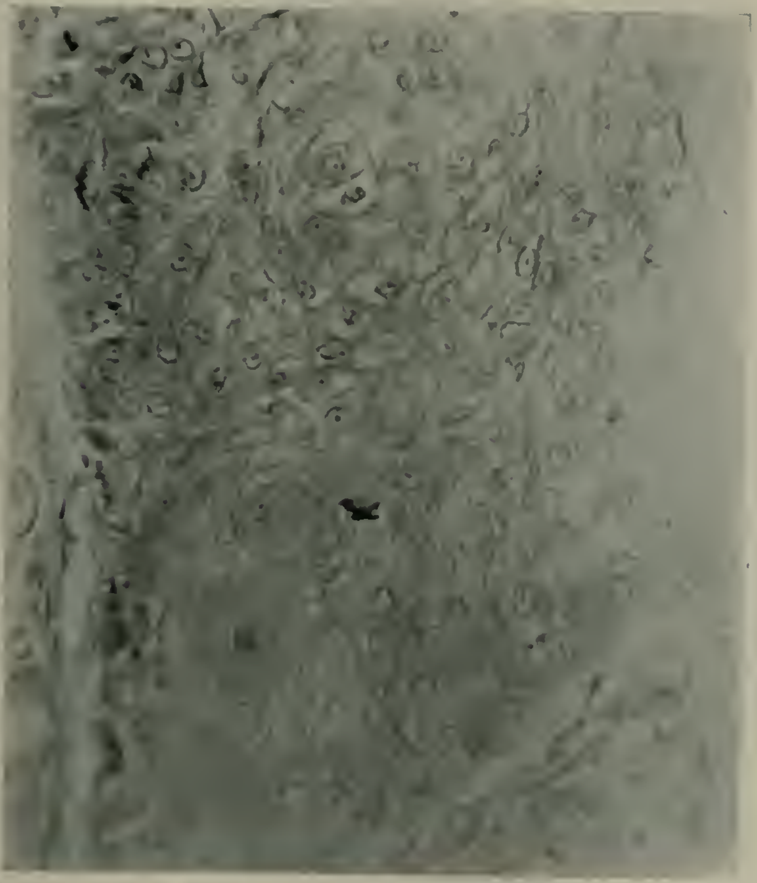


Figure 1. High Power Microscope.

June 1, the patient returned with growth from canal and old mastoid wound; concha very perceptably tender, red and infiltrated. The old wound was vigorously cauterized with the electric cautery. The cauterizing seemed to have some beneficial effect. Since the neoplasm bleeds freely it is troublesome to cauterize it properly. On questioning the patient she said she first noticed the growth in back of ear, March 16; it slowly grew larger; otherwise she was comfortable. She returned to my office off and on for the following six months and I cauterized the neoplasm with silver nitrate stick, alternating with the electric cautery. December 27, she returned with growth occupying canal and concha; whole of ear hard and thick, and growth pushing its way out through the mastoid shell. Patient suffering pain. The growth bled very freely and was hard at some places, at others soft. I suggested operation to relieve pain and tension. She gladly consented. The blood-count, leucocyte 10,400, differential—polymorphonuclear 73, small mononuclear 17, large mononuclear 12, eosinophiles 6.

December 31, under ether anesthesia, I opened the old wound. I found the whole mastoid cavity tightly packed with a fibrous bleeding growth, and the glands at tip of mastoid and neck involved.

These I removed. After thoroughly removing all of the growth from the middle ear, antrum, neck and side of face, I cauterized with the electric cautery the surrounding area of the mastoid. The pathological report from Dr. Maldeis: Gross examination—Large piece about size of walnut; several smaller pieces each size of pea. Tissue consists of rather dense mass. One section shows considerable amount of fibrous connective tissue, having pearly-white appearance of carcinoma. Few areas of necrosis scattered through mass. On outer surface there is an abundance of granulation tissue.

Microscopic Examination: Specimen shows numerous areas of epithelial cells grouped into definite masses. In places, central part of mass shows whirl of flattened cells with keratin deposits. There is an abundance of connective tissue, separating cell groups. Very few blood vessels. There are areas suggesting papillomatous growth and it is probable that the original tumor was of this nature.

Diagnosis: Squamous carcinoma. Dr. Winternitz reported: Microscopical sections made from portions of the tumor from the several different areas show practically the same general appearances. The tumor forms an infiltrating mass composed of nests of cells which are found everywhere scattered in the surrounding tissue. They are actively invasive and infiltrate the striated muscle fibers which are present in this area. The nests of cells form false alveoli and in most instances are quite cellular and solid. In a few cases the centers of the nests are pale, and the cells approaching the center grow larger. The cells themselves vary slightly from cubical to large squamous cells, are slightly irregular in size and their nuclei vary also somewhat both in size and in chromatin content, and not infrequently mitotic figures occur. The tissue surrounding the cell-mass is fibrous tissue stroma in which there are numerous mononuclear lymphocytes. There is no necrosis present in the tumor throughout any of the sections. The picture is that of a typical squamous cell epithelioma with a tendency to form epithelial pearls.

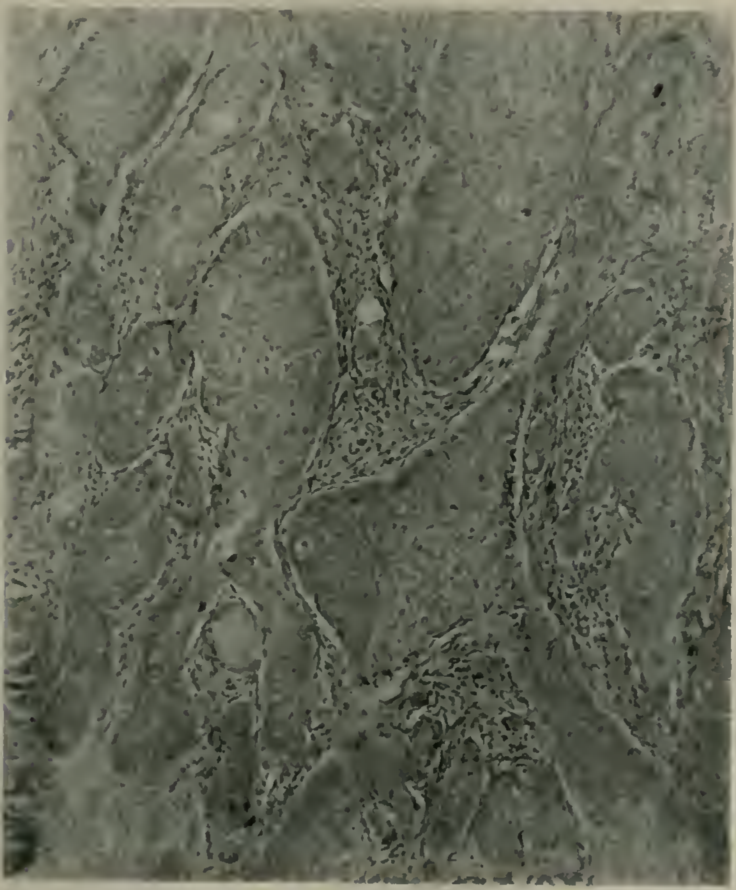


Figure 2. Low Power Microscope.

The wound healed slowly; her temperature ran a fairly normal course, never exceeding 100° F. The deeper glands in the neck enlarged and now the whole side of the face is red, edematous and painful to pressure. The pain is worse when lying down. The patient retains her well-nourished physical condition. At the present time there is no indication of brain pressure.

322 North Charles Street.

TONSILLECTOMY IN THE UPRIGHT POSITION UNDER ETHER.*

Dr. W. H. Roberts, Pasadena, Cal.

The position of the patient while being operated under ether for the removal of diseased tonsils is one that deserves serious consideration. As we constantly see and treat the throats of our patients while they are sitting upright, we naturally acquire a familiarity with the relationship of the various structures as thus presented to view, and we attain a manual dexterity in our treatments which a change in the patient's position necessarily lessens. It would seem that tonsillectomies could be more readily performed with the patient in the upright position than in any other, if the patient can be safely placed in the upright position when under ether.

Before adopting the upright position for tonsillectomies under ether, I carefully investigated the possible hazards of this position. I knew that for years it had been the custom of the nose and throat surgeons on the staff of the Massachusetts Charitable Eye and Ear Hospital to do all tonsil and adenoid operations under ether with the patients sitting up in a chair. While there, I inquired for fatalities following these operations, and I learned they had had none. Personal communications from various friends of mine who had been connected with this hospital were to the effect that there never had been a fatality in Boston that could in any way be ascribed to the upright position.

For the last ten years I have done practically all my tonsillectomies after the manner about to be described, and I have yet to see any unfavorable condition either during or after the operation that could be attributed to the upright position. This position, in addition to the advantage of having the parts in the position in which we are the most familiar with them, offers several other advantages: 1. The ease with which the field of operation can be illuminated, either by an electric headlight, or by natural or artificial light coming from behind and above the surgeon's head. 2. The ready accessibility of the parts to be operated on. 3. The freedom with which an assistant can hold instruments and can sponge the field of operation. 4. The simple control of the hemorrhage at its source, and the prevention of the entrance of blood into the larynx. 5. The thoroughness with which the operative field can be examined for tonsil remnants, tissue shreads and bleeding points after the enucleation. 6. The ease of control of the patient's head by the anesthetist.

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*Read at the Meeting of the Western Section of the American Laryngological, Rhinological and Otological Society, Oakland, California, April 15, 1913.

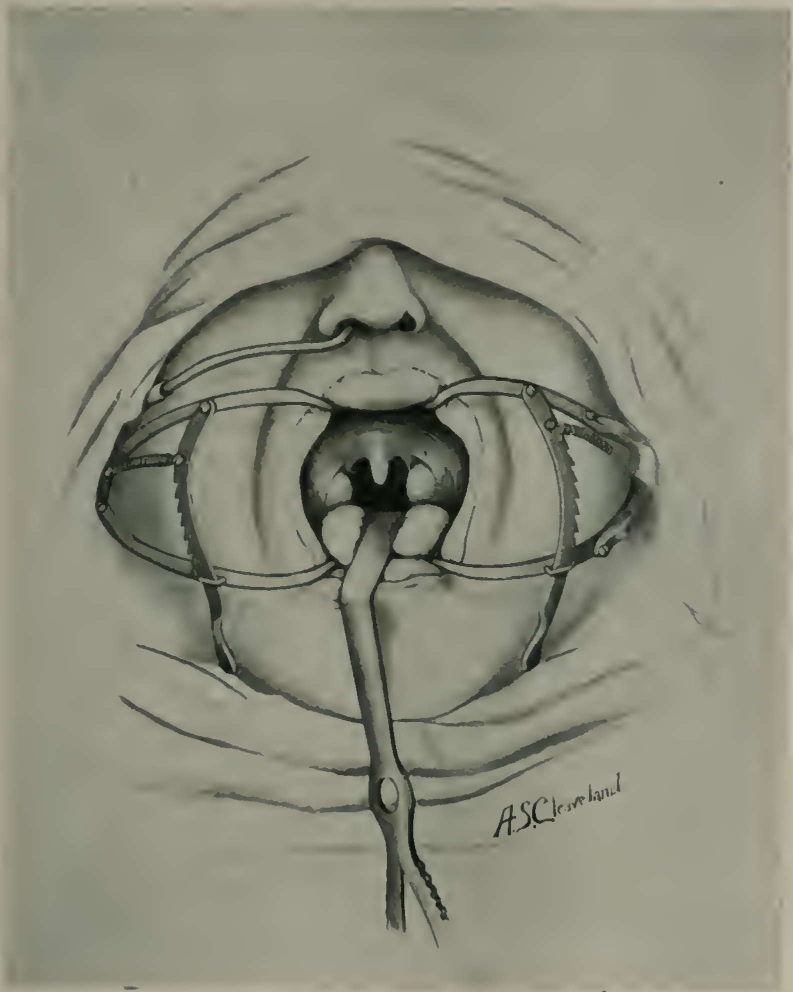

Figure 1. Whitehead gag in position. Tongue controlled by a separate tongue depressor. Ether administered through a nasal tube.

The entrance of blood into the larynx during the operation is an objection raised by some to the upright position.

Dr. R. Bishop Canfield, of Ann Arbor, has examined the larynges of many patients operated in the prone, as well as in the upright position. In a personal communication he says: "There seemed to be no more blood in the larynx after operations in the upright position than after operations in the recumbent position. In no case was the amount of blood excessive; it appeared more like a stain or a small thin clot. The vocal cords were streaked in some cases; in others, the posterior wall showed a little dry blood. In my experience, there is much less blood in the mouth and pharynx

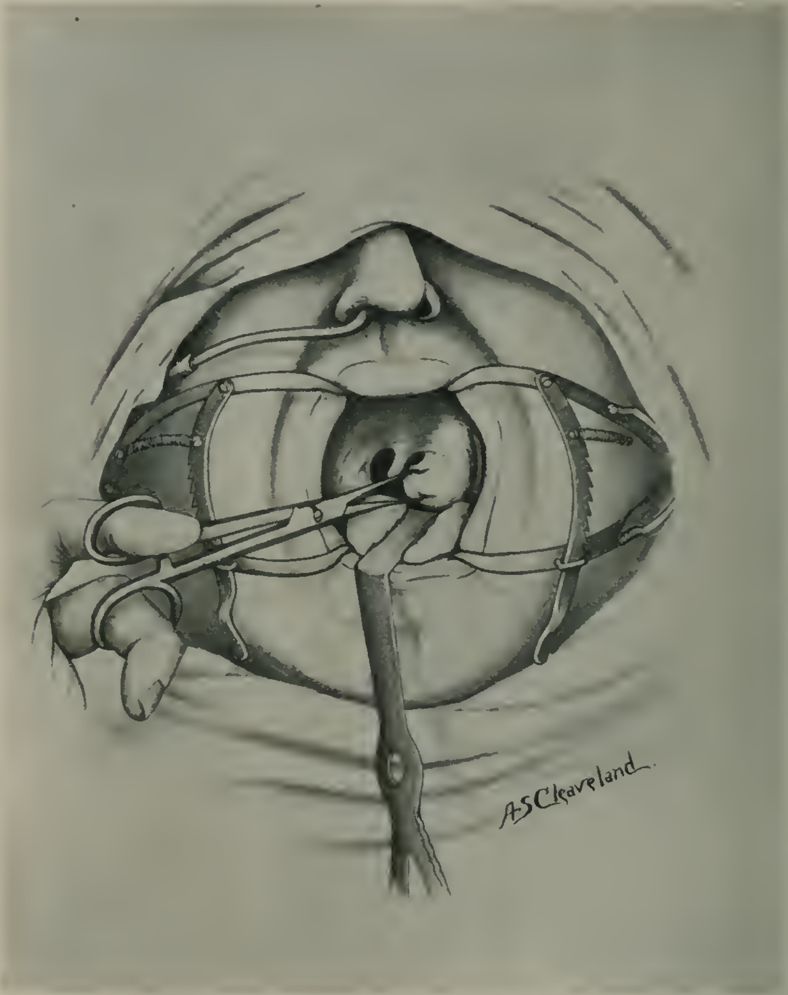

Figure 2. Traction being made on the left tonsil, outlining the upper portion which is usually concealed in the supra-tonsillar fossae.

during operation in the upright position than in the supine position. I have never seen any accident that could be attributed to operation in the upright position. This statement covers several thousand cases."

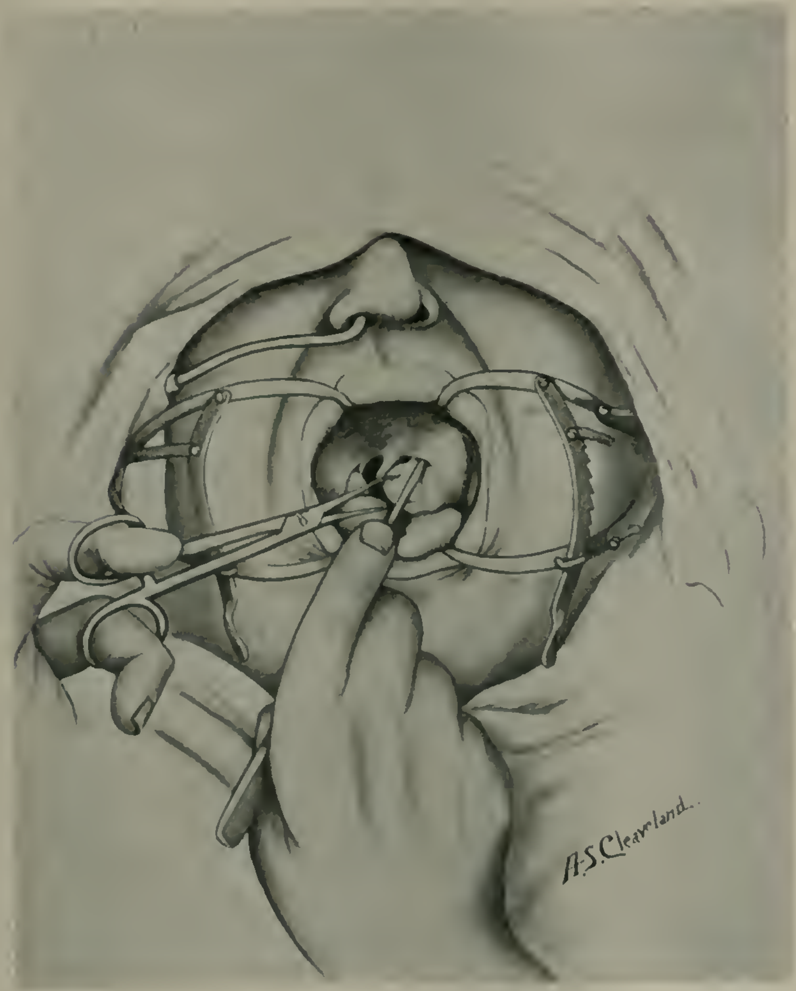

Figure 3. Knife-blade entering one millimeter above the semi-lunar margin of the plica supra tonsillaris and keeping between the plica and the tonsil capsule.

The amount of blood gaining access to the larynx depends on the depth of the anesthesia. The patient should never be so deeply anesthetized as to be unable to swallow the blood and mucus that might collect at the entrance to the esophagus. It is obviously easier to swallow in the upright position than when lying prone. Further, the anesthesia should be so timed that the patient will be partially awake at the conclusion of the operation. As the anesthesia is so important a part of the operation, it necessarily follows that it should be administered only by an expert, and by the one who is accustomed to the surgeon's technic.

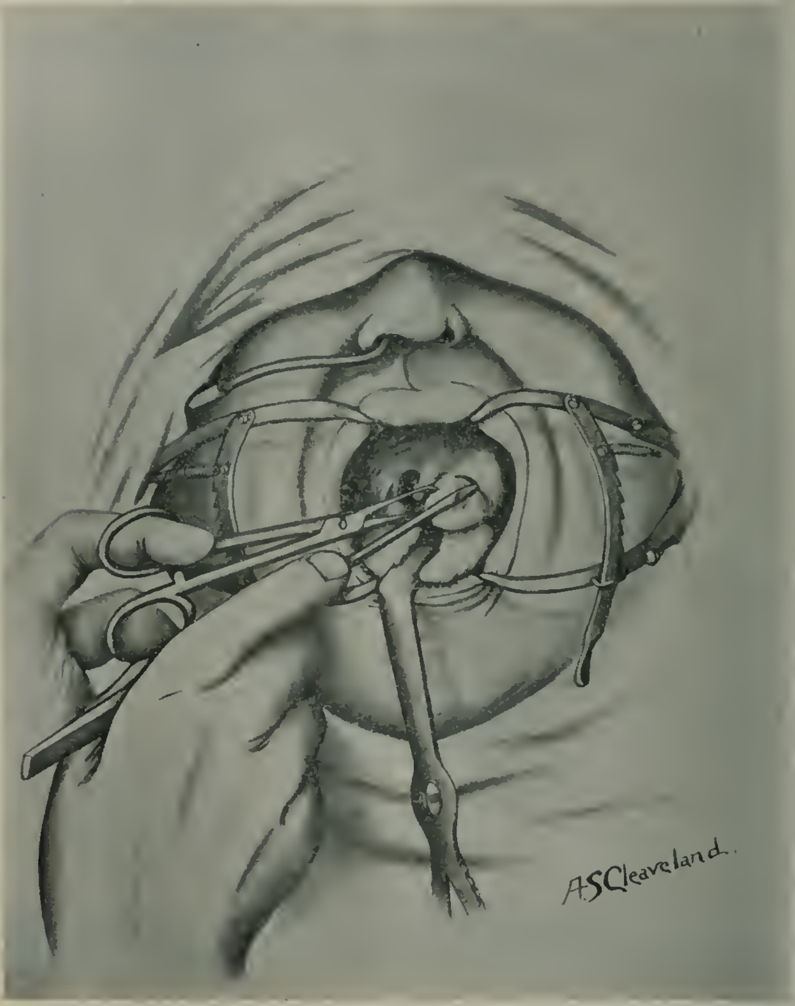

Figure 4. Freeing the anterior pillar with blunt-pointed Tyding's knife.

The instruments are arranged in the order of their use on a table at the surgeon's right. The assistant stands at the surgeon's left, beside a table containing the sponge-forceps which are loaded by a nurse as required. Another nurse acts as an assistant to the anesthetist. The various stages of the operation are as follows:

1. The patient is anesthetized in the prone position, and, when thoroughly under the ether, is placed in a chair in front of the operator, who is so seated that his head is about on a level with that of the patient.

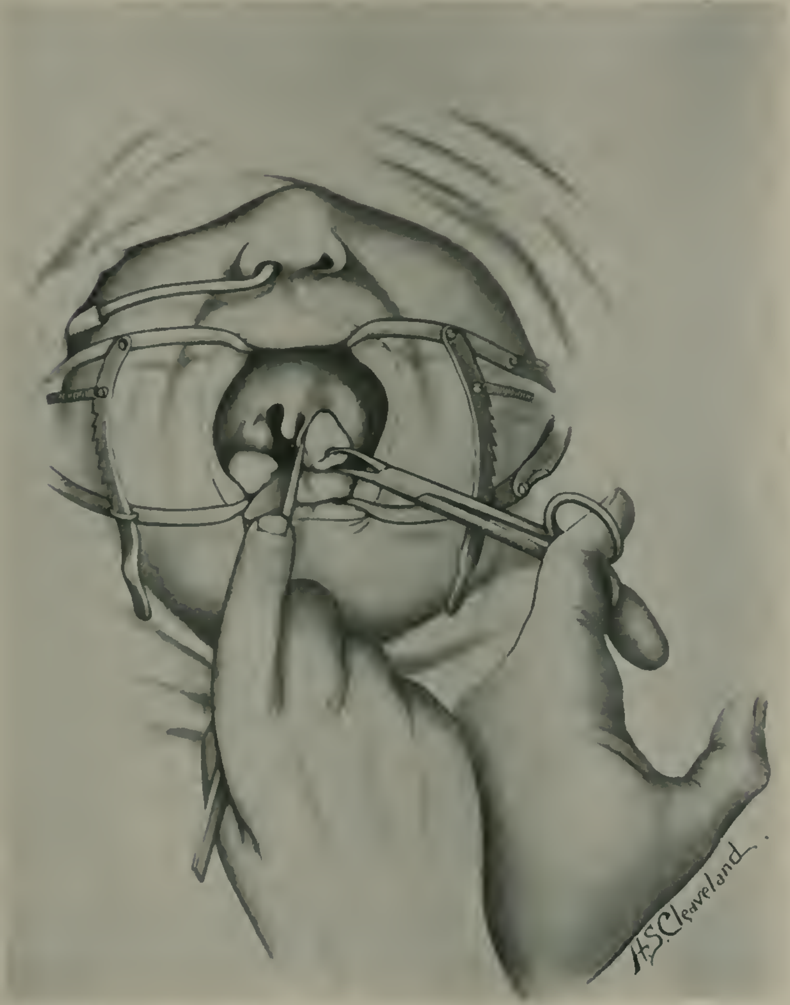

Figure 5. Freeing the posterior pillar with blunt-pointed TydING's knife.

2. The anesthetist then stands behind the patient, so as to control the head and to continue the administration of the ether through a tube introduced through the right nostril. A foot-pump forces air

through a bottle containing the ether, and the vapor is carried by a rubber tube to the patient's nose.

3. The patient is covered from the neck down with a sterile sheet that extends over the surgeon's lap; a Whitehead gag is inserted; and, after depressing the tongue, the parts are inspected and all mucus is wiped from the pharynx. (Figure 1.)

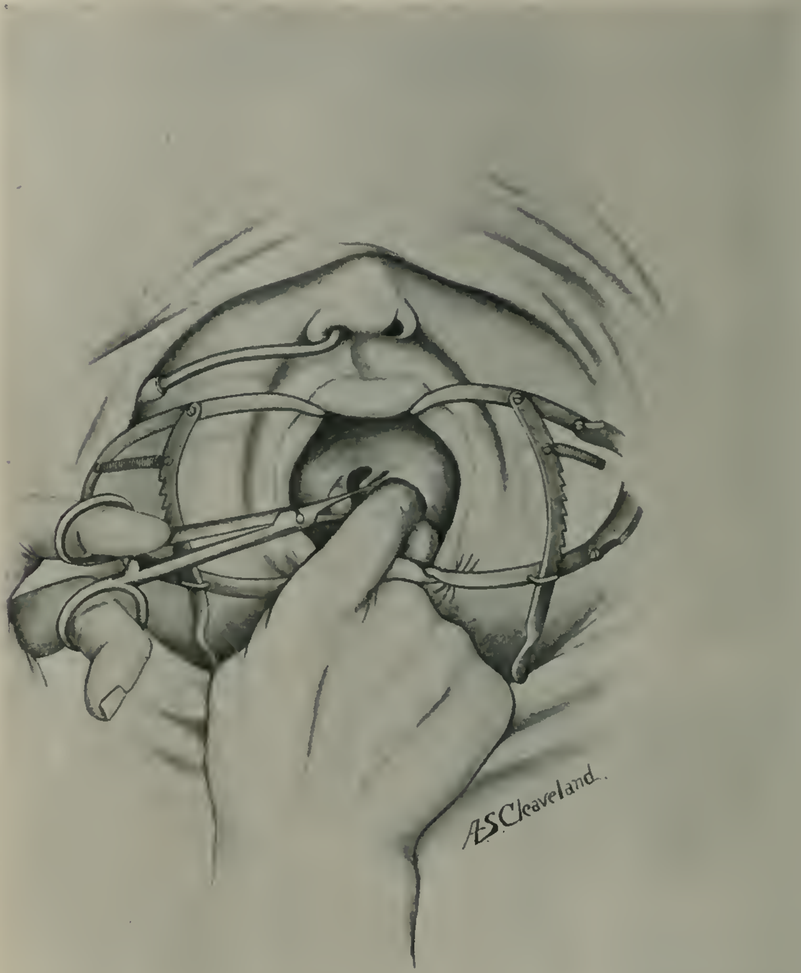

Figure 6. With the index-finger determine whether or not the tonsil is free in the supra-tonsillar fossae and separated from the anterior and posterior pillars.

4. The left tonsil is then firmly grasped by a vulsellum forceps (Figure 9-a), and sufficient traction is made upon the tonsil to cause

its concealed outlines fully to be revealed behind the pillars (Figure 2). This is very important, as it at once shows the large portion of the tonsil occupying the supra-tonsillar fossae.

5. While keeping traction on the tonsil with the vulsellum, a small incision is made one millimeter above the semi-lunar margin of the plica triangularis or plica supra-tonsillaris. This is done with the small-bladed knife shown in Figure 9-b. The knife blade should pass well up between the capsule covering the anterior portion of the velar, or supra-tonsillar lobe, and the plica supra-ton-

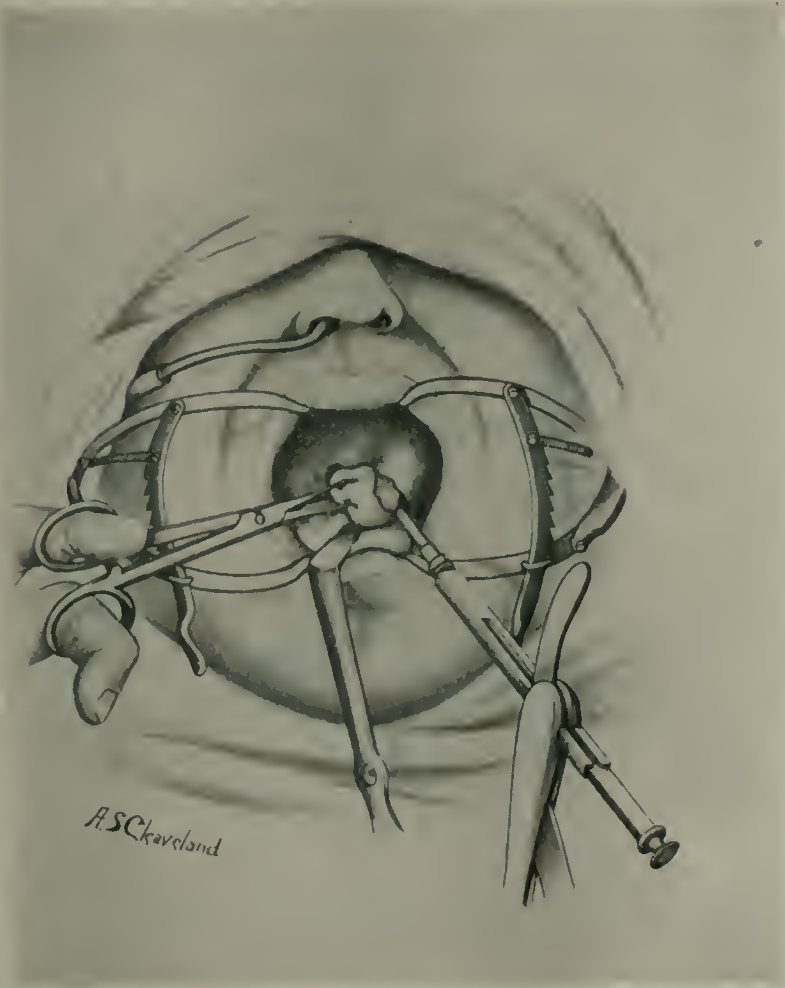

Figure 7. Slipping the loop of a Tydling's snare over the dissected area.

sillaris (Figure 3). It is very important that this incision be not too deeply placed for fear of getting inside the capsule of the tonsil. The secret of the success of any tonsil enucleation lies in

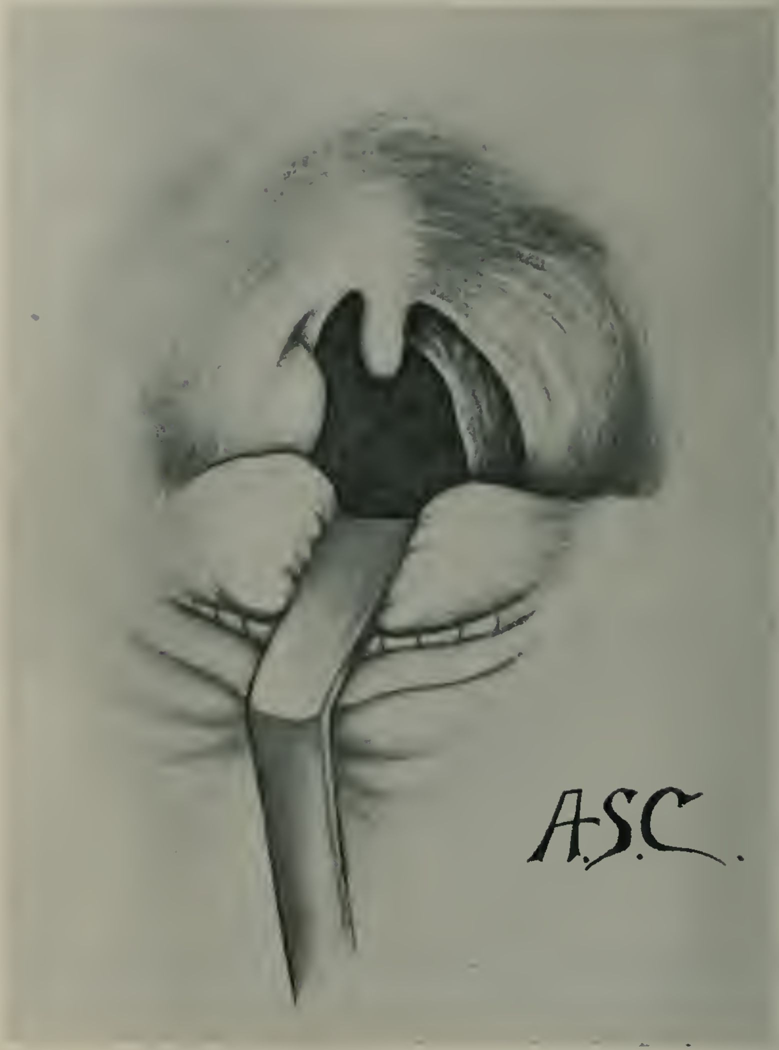

Figure 8. Appearance of the pillars after removal of the left tonsil.

keeping just outside the capsule of the tonsil and in keeping inside the tonsil fossae. Fetterolf, in a recent article, deals with this point in a very thorough manner. (*American Journal of the Medical Sciences,* July, 1912, page 37.)

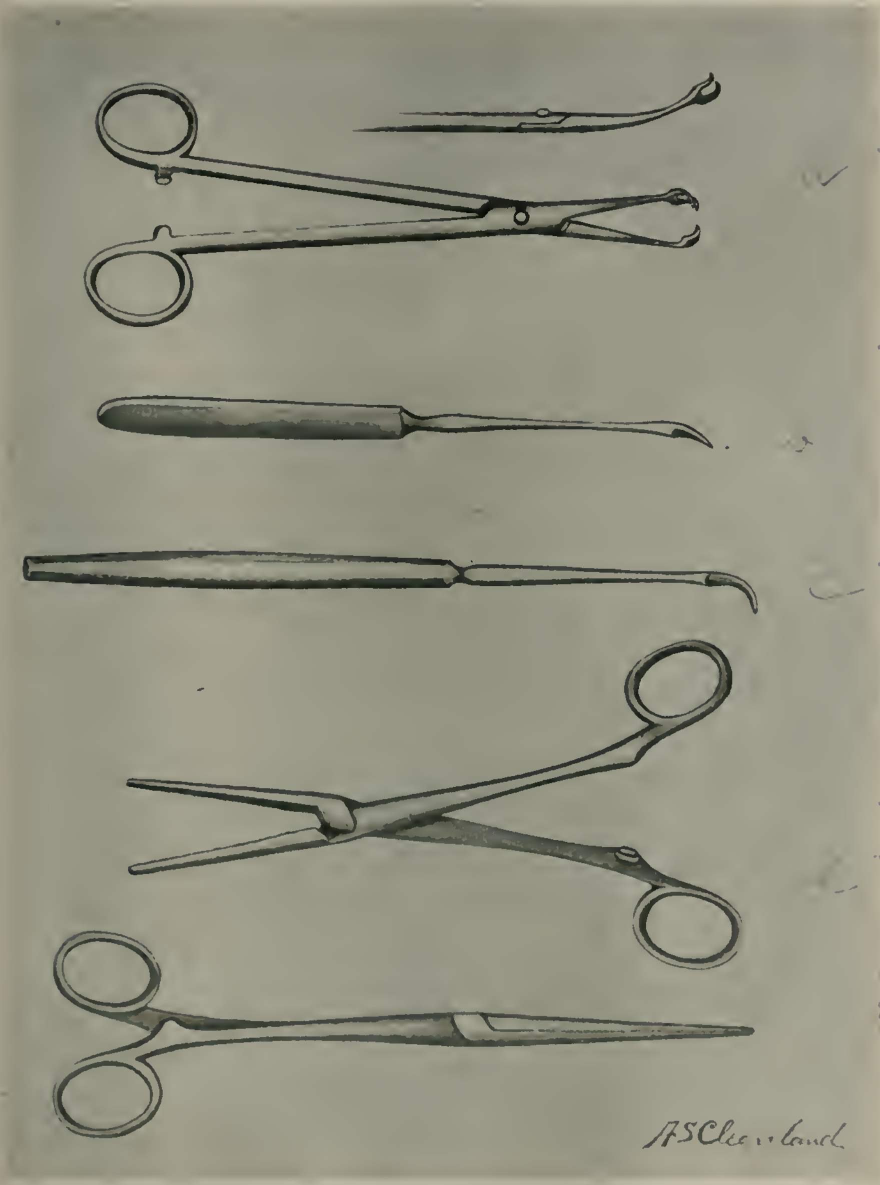

Figure 9. (a) Vulsellum forceps. (b) Knife for primary incision. (c) Tyding's blunt-pointed knife. (d) Combined sponge forceps and artery clamp.

6. A blunt-pointed Tyding's knife (Figure 9-c) is then used to free the tonsil-margin from the mucous membrane layer of the plica triangularis, first along the anterior pillar (Figure 4), and then along the posterior pillar (Figure 5).

7. The tongue-depressor should now be removed; tension should still be exerted on the tonsil, which is grasped by the vulsellum; the index-finger of whichever hand is more convenient is passed over the top of the tonsil between the capsule and the supra-tonsillar fossae (Figure 6). If the finger meets with resistance, reintroduce the Tyding's knife and sever any bands which may prevent the finger entering the supra-tonsillar fossae. Then gently sweep the finger down between the anterior pillar and the capsule. and between the posterior pillar and the capsule: pay particular attention, by digital dissection, to the freeing of the tonsil at its inferior portion near the tongue.

8. Having satisfied oneself by means of the finger that the dissection is finished and the tonsil free from any attachments in the supra-tonsillar fossae or to either pillar, slip the loop of the Tyding's snare over the handle of the vulsellum which is still making traction on the tonsil, and carefully work the loop behind the tonsil. (Figure 7.)

9. The field of operation should now be carefully sponged before tightening the wire, in order to satisfy oneself by inspection that the uvula and the pillars are not included in the loop. The loop is slowly tightened, and, when the tissues at the back of the tonsil-capsule are cut by the wire, the tonsil is removed by the vulsellum.

10. Instantly the assistant introduces into the tonsil fossae a gauze sponge on a sponge holder, making pressure till the bleeding stops. Should occasion require, these sponge holders can also be used as artery clamps to control any persistent bleeding (Figure 9-a). I have never found it necessary to tie a vessel.

11. After checking the bleeding, the right tonsil is removed in the manner just described for the removal of the left tonsil.

The appearance of the pillars after the enucleation of the left tonsil is well shown in Figure 8.

461 East Colorado Street.

HYPERTROPHIED TONSILS AND ADENOID VEGETATIONS IN PUBLIC SCHOOL-CHILDREN IN NEW YORK CITY.*

DR. S. JOSEPHINE BAKER, New York City.

At a meeting of the Laryngological Section of the Academy of Medicine on March 26, a motion was passed authorizing the Secretary to send to each member a circular letter embodying certain questions regarding the relation between the Board of Health, through its school medical inspectors, and the occurrence of hypertrophied tonsils in public school children. Later, this report was used by the Public Education Association as the basis of resolutions which were sent to the Board of Health, asking that the inspectors recommend, in each case of hypertrophied tonsils, whether or not operation should be performed.

Section on Laryngology & Rhinology of the New York Academy of Medicine.
Associated Out-Patients Clinics of the City of New York,
17 West 43rd Street, CITY.
New York, April 23, 1913.

Dear Sirs:

Desiring to comply with your request for an expression of opinion from the members of the Laryngological Section upon certain phases of the "Tonsil Situation" in this city, the matter was brought before the Section at the regular meeting on March 26. On motion, the Secretary was instructed to send to each member a circular letter embodying the questions contained in your communication. Some seventy responses were received, and the following report embraces the opinion of the majority of those who answered this letter.

Question 1: Should the present widespread practice of tonsillectomy in children be continued and the school inspectors encouraged in urging parents to have their children's tonsils removed?

Answer: (a) Tonsillectomy in children should be advised only by those specially trained to recognize the conditions demanding this operation. (b) The average school inspector and visiting nurse is incompetent to decide this question. (c) Parents should not be advised to take their children to certain institutions as this encourages many to seek charity who otherwise would not do so; thus tending to pauperize the community. The majority favor tonsillectomy in every instance, but some few believe that tonsillectomy still has its place.

Question 2: Should either tonsillectomy or tonsillotomy, or both, be performed in Out-Patient Clinics?

Answer: (a) The majority believe that both operations are operations requiring the facilities of a hospital. (b) A small minority believe that both operations can be safely done in an Out-Patient Clinic, while some few believe that tonsillotomy, but not tonsillectomy, may be done without hospital facilities.

Question 3: If the previous question is answered in the affirmative, what facilities should be provided for the surgical treatment and after-care of these patients? Should operations be performed in dispensaries (a) which have no special operating room (b) which have no recovery room where patients may be kept after operation?

Answer: The few who think that this operation can be safely performed in a dispensary, believe that a recovery room should be provided where patients may be kept for several hours under observation.

Yours very truly,
Signed C. D. VAN WAGENEN, M. D.,
Secretary.
Signed, WILLIAM WESLEY CARTER, M. D.,
Chairman.

The answers to the questions sent out by this Section seem to me to indicate a misunderstanding in regard to the Department of

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*Read before the Section on Laryngology and Rhinology of the N. Y. Academy of Medicine, December 17, 1913.

Health, and therefore it is my desire to place the facts clearly before you. The importance of this subject merits consideration, as the department, through its school medical inspectors, supervises the health of 825,000 school children of this city. Since 1905, the system of school medical inspection has included the physical examination of each child on its entrance to school and on an average of every three years thereafter. School inspectors are all appointed from lists furnished by the Civil Service Commission, and are all physicians licensed to practice in the State of New York. The majority are graduates of New York City Colleges.

During the early part of this work it was reported by these inspectors that approximately thirty per cent of the children in the schools were suffering from hypertrophied tonsils, with or without a form of obstruction to the nasal breathing which implied the presence of adenoid growth. It was the desire of the department to fix a standard, as far as possible, for the class of cases where operation would be advisable, and to this end a letter was sent to a number of eminent specialists in nose and throat diseases in this city, asking them what, in their opinion, were the exact indications for the operative treatment of enlarged tonsils. It was a significant fact that no two of these specialists agreed as to the exact details; most of them dwelt upon many features of this condition which, from the standpoint of the medical inspector, were not practical. The opinions expressed by them revolved about the following points: size of the tonsil, adhesion to the pillars of the fauces, smoothness of the surface or the presence of large and irregular crypts, the embedded tonsil, the pathological tonsil, the tonsil which was subject to frequent attacks of acute inflammation, the susceptibility of children, because of this enlargement, to infectious diseases, and the question as to whether the tonsil was hypertrophic or hyperplastic. There was no unanimity of opinion, nor was any statement made that was practical to apply to the work of medical inspection of school children. In fact, it could readily be gathered from the statements made by them that if a set of one hundred children with enlargement of the tonsils was submitted to these seven specialists, no agreement could be reached between them as to the indications for operation in these cases.

Realizing, then, the marked difference in opinion that must be considered even in the diagnosis of these cases, the Bureau of Child Hygiene established a standard as follows: that no case was to be considered as true hypertrophy of the tonsils unless the hypertrophy was such as to interfere with the nutrition of the child or to cause secondary disturbances, interfering with its health and, incidentally, with its school progress. In other words, no tonsil was to be considered hypertrophic unless the medical inspector, considering it as his personal case, believed that its presence was a distinct detriment to the health of the child, and that, therefore, the tonsil should be removed. At no time has the medical inspector been allowed to indicate the character of treatment that should be considered advisable. The Department of Health has always taken the attitude in regard to the inspection of school children that its duties consist in ascertaining defects which interfere with the health of the children, calling the attention of the parents to the fact that the children are so affected, and making all possible efforts to see that the children in question are placed under competent medical care. The Department does not feel that it should dictate the character of treatment to be obtained by the child but holds that this is a matter which should be left to the attending physician. It also believes that its functions and efforts should not extend beyond seeing that the parents are made to realize their responsibility in regard to the welfare of their children and that the latter are placed under medical care. For this reason a certificate from a physician or surgeon, stating that a child is under his care, has always been accepted by the department as evidence of treatment, although the department realizes from extensive experience the futility of so-called "medical treatment" in the cure of either enlarged tonsils or adenoids.

Since January 1, 1909, the Bureau of Child Hygiene has kept accurate and careful records of the occurrence of these cases among the school children of this city, and it is interesting to note, that whereas in 1909, 22 per cent of the children in the public schools were found to have hypertrophied tonsils, in 1912 only 10.14 per cent were found to be so affected. The reduction in the number of cases of defective nasal breathing, with possible adenoids, has been even greater, or from 18.7 per cent in 1909 to 7.6 per cent in 1912.

Statements (a) and (b), therefore, as outlined in your report, are founded on a misapprehension, for when it is stated that (a) "tonsillectomy in children should be advised only by those specially trained to recognize the conditions demanding this operation" and (b) "the average school inspector and visiting nurse is incompetent to decide this question" it should be realized that this latter assumption is based upon conditions which do not exist, as the inspectors do not recommend treatment, but simply state that an abnormal condition is present, and then the matter is referred to the family physician for such action as he may deem advisable.

The first question, "Should the present widespread practice of tonsillectomy in school children be continued, and the school inspectors encouraged in urging parents to have their children's tonsils removed?" seems also to be founded upon a misapprehension. I would call your attention to the fact that, in 1912, out of 287,469 children examined, 30,021 (or 10.4 per cent were found to have hypertrophied tonsils. Of this latter number, 14,137 (or only 47.1 per cent) obtained treatment. The character of this treatment, according to the certificates of the physicians and surgeons who administered it, was as follows: Operations, 6,239 or 20.8 per cent; medical treatment, 7,898 or 26.3 per cent.

Of the total number of children with tonsils so enlarged that the nutrition and well-being of the child were seriously interfered with, only 20 per cent had the tonsils removed. This hardly seems to warrant the idea that there is a widespread operating for partial or complete removal of tonsils.

No attempt is made by the medical inspector to diagnose adenoids. It is not possible, in the ordinary school building, to provide facilities for a proper examination of the naso-pharyngeal vault and therefore, for many years, the department has not used the term "adenoids" in its report of the physical condition of school children, but each child has been tested to determine whether or not its nasal breathing was occluded. In each such case, a diagnosis of defective nasal breathing has been made, and it has been left for the family physician to decide whether or not this occlusion was due to adenoids, deflected septum, hypertrophied turbinate, nasal polypi, or other cause, and to provide appropriate treatment.

The second and third questions of your report, relating to whether or not tonsillectomy on tonsillotomy should be performed in outpatient clinics, are of particular interest to this department because several years ago, our experieence of the results of operating upon these children in dispensaries, and without anesthesia, and sending them home immediately after operation, was such as to lead us to believe that additional hospital facilities must be provided and that, eventually, operations in dispensaries would cease because of their frequently harmful nature. The shock to the nervous system of the child, as a result of having this operation performed without anesthesia, the fact that in many instances the struggles of the child prevents the operation being either a complete or a partial success, the danger of septic sore throat and the more marked danger of secondary hemorrhage, are results which have been noted by the department's inspectors and nurses in no inconsiderable number of cases. There are, in this city, a large number of people who are unable to pay the fee required for the use of an operating room or the anesthesia, and, possibly, the cost of remaining in a hospital, yet whose children are urgently in need of this operative care. While the Borough of Manhattan is fairly well supplied with hospitals and dispensaries, the other boroughs are not so well cared for and it is often impossible for a school child to go to a dispensary at any great distance, owing to the fact that its parents are frequently unable to accompany it. The Children's Clinics maintained by the Department of Health, therefore, have been placed only in those parts of the city where the need was evident and where the existing facilities were insufficient to care for the number of children needing treatment and unable to pay for it. The greater need, however, which was covered by the establishment of these dispensaries was the provision of a place where a child might be adequately cared for during its operation.

Before sending a child to one of these clinics, the nurse investigates the financial status of the family, and children are not referred for treatment unless the family is unable either to pay a private physician or the requisite fee for hospital care. After a child is received at the clinic, a further investigation as to the financial status of the family is made by the registrar. The clinics are operated under the control of the State Board of Charities, and the department makes every possible effort to see that the facilities are extended only to those children whose parents are unable to pay any fee.

In our clinics all children are received the afternoon before the day of operation; they are kept there that night, regularly prepared for operation, and the following morning the adenoids or tonsils are removed under gas and ether anesthesia. The child is then kept in bed during that day, remains in bed the following night, and is finally discharged thirty-six or forty-eight hours after entrance. Nearly four thousand such operations have been performed since the dispensaries were opened, with one fatality. This latter was the case of a girl, 11 years old, who was mentally defective. She was operated upon at 10 o'clock in the morning, about two hours later became cyanotic, reacted well to stimulation, and showed improvement until about 3 o'clock in the afternoon, when she again became cyanotic, developed an exceedingly rapid pulse, and died suddenly. There was hemorrhage from the throat just before death. In every other instance the child has left the hospital in good condition and has remained so.

From our experience with these children, we believe that these operations should never be performed except under anesthesia and that, in each case, the child should remain in the hospital for twenty-four hours after the operation has been performed.

In order that the school children of this city may receive the care to which they are entitled so that they may reach normal development in adult life, it is essential that everyone connected with this problem should realize the necessity of harmonious and co-operative work. In the care of school children there are many factors involved: first, the Board of Education, which has charge of the school buildings and the conditions under which the children study; second, the Department of Health which has charge of the school medical inspection and examination; third, the medical profession, who must make the ultimate diagnoses and provide for treatment; fourth, the parents, who must be convinced of the necessity of proper care for the child, and, last and most important of all, the child himself, towards whom our efforts are directed. Unless there is complete understanding, unless there is a realization of definite good to be done, we shall all fail of our purpose, but if each will do his part, with a realization that there is a part for each to do, the status of the school child, as far as its physical condition is concerned will be inevitably and materially improved.

33 West Ninety-sixth Street.

Treatment of Diphtheria and Diphtheria Carriers. SOLON G. WILSON, *New Orleans Med. and Surg. Jour.*, Sept., 1913.

The best results in the treatment of the disease is by large doses of concentrated antitoxin, 10,000 units being the initial dose, given intra-mascularly, with a period of twenty-four hours between the doses, the membrane being the chief guide of repeating the dose, except, of course, in the laryngeal type, and in this type the stenosis and cyanosis serving as a guide. Owing to the frequency of diphtheria carriers, cultures are advised before tonsillectomies and adenectomies. SCHEPPEGRELL.

CASE REPORTS.

Dr. W. D. Black, St. Louis.

Case 1. Hemoglobinuria following peri-tonsillar abscess and recurring after other infections: In 1905, I was called to attend a patient, male, 12 years of age, apparently healthy. He had had most of the infectious diseases of childhood with the exception of scarlet fever. The child's tonsils and adenoids were operated upon three years previous to the present illness but were only partly removed. Present illness began with a sore throat, chills and fever. About twenty-four hours after onset the tonsils showed a typical follicular tonsillitis; after two or three days the follicles disappeared but the right tonsil began to get painful and swollen. In two or three days the patient had a well-developed peri-tonsillar abscess which was opened the sixth day and pus evacuated. About this time the patient showed signs of sepsis. Urine showed a change, dark amber at first and after twenty-four hours reddish-brown, was slightly decreased in quantity. After rest and eliminative treatment the urine gradually cleared, in about two weeks. Examination of the urine by two microscopists showed a quantity of albumen hyaline and granular casts; the latter disappeared after a few days. Another microscopist reported hemoglobin but no red blood cells. After two years of treatment by diet and change to a southern climate the patient's urine became free of albumen and he fully recovered.

In 1908, three years after the first attack, the patient again had an infection simulating grip. Although there was only a mild pharyngitis and tonsillitis the urine again showed a change in color after twenty-six hours. Examination of urine chemically showed albumen and casts which latter disappeared after seven or ten days. The pathologist who reported the finding of hemoglobin during his first illness reported a similar condition in this attack. Two other doctors examined the urine and confirmed his findings. This attack ran a course similar to the first one, requiring many months before the urine showed no trace of albumen.

During the next five years the patient was in good health except for frequent colds which produced a small amount of albumen in the urine but no casts or hemoglobin and which disappeared after a week or two.

In February or March, 1913, he again had an attack which came on a little different from the others. In this attack the first symptoms were dryness of the throat with dysphagia but no tonsillitis. Buccal membrane and that of pharynx showed a pale, red color; tongue dry and rough. Urine findings identical to those of prior attacks. This attack was severe and the patient showed much prostration and headache which were relieved by eliminative treatment. Although this attack was severe the urine cleared much more quickly and the patient was fully recovered in a few weeks.

In January, 1914, the patient developed typical follicular tonsillitis followed by peri-tonsillar abscess. Pus was evacuated eight days after the onset of the peri-tonsillar infection. Again the urine showed hemoglobin, albumen and a few casts. After a couple of weeks the patient is again apparently normal.

All attacks practically ran the same course and in all probability came from the throat infection. One particular striking symptom noted during each attack was the slight icterus and slowing of pulse rate which ranged between fifty and sixty per minute. There was no edema or any general symptoms that often accompanies acute nephritis. The blood was examined for plasmodia each time and none found. A Wassermann test of patient's blood was not made.

Recently W. W. Young, of Boston, wrote an article which appeared in Vol. XLII, No. 5, of the *Journal A. M. A.,* in which he quotes Cook who states that 90 per cent of hemoglobinuria gives a positive Wassermann reaction. Now in this case I am positive the attack followed throat infection.

The father of the patient had two attacks of iritis three or four years prior to a tubercular involvement of the lungs but no history of lues. The iritis was diagnosed rheumatic by a competent oculist.

I have repeatedly advised the complete removal of the tonsils and adenoids but the mother of the patient will not consent.

Case 2: Luxation of the faucial tonsil: Patient, Russian who could not speak English, aged 44 years, came to City Hospital clinic, suffering from a sore throat.

An examination revealed an acute tonsillitis and pharyngitis. The left tonsil was spherical and was lying in a cup-shaped cavity. This cavity was supported by a short, thick column of fibrous and lymphoid tissue at the inferior tonsillar fossa, filling it about one-third of its height. Upon using a probe, I discovered it was attached by a sort of pedicle and the tonsil could be pushed forward over the cup-like receptacle into the oral cavity for about half an inch. The patient informed the interpreter that this accident often happened and caused him much discomfort. The condition was probably congenital and I recommended the removal of the tonsil. The patient did not return.

Case 3. Gunshot wound in mastoid: Patient, a boy about 15 years old, played with a revolver, (22 caliber) which was accidentally discharged. The bullet entered the mastoid about the middle and ranged inward and upward toward the antrum. Infection occurred and when I saw him at the City Hospital clinic he gave a history of a discharge from the ear since the accident, which was several months previous.

A radiogram disclosed that the bullet split, one fragment lodged in the region of the antrum and several small pieces in the mastoid and posterior wall of the canal. I performed a radical mastoid, and the patient was discharged from the hospital in a few weeks, cured.

Case 4. Purpura hemorrhagica: Girl, aged 7 years; American; good home surroundings; looks well nourished but a little pale: teeth normal, had tonsils operated by a surgeon four years ago. About three-fourths of right tonsil was removed and about one-half of left. Father brought child to see me owing to slight hemorrhage from the throat and for removal of tonsil. Found on examination that the gums were normal. Buccal membrane on right side showed two or three ecchymotic areas which had the appearance of small scratches, purple and pale red. On examining the right tonsil I found it in fairly healthy condition. Left tonsil large and looked as if it had never been operated. The entire tonsil was covered by a pale, purplish-red area but no free hemorrhage. On the posterior lateral wall of the pharynx there were about six ecchymotic areas similar to those on the buccal membrane. There was no history of any of the exanthematous diseases.

Next examined skin of leg and on each thigh found areas of purplish reddish spots about the size of a No. 1 shot.

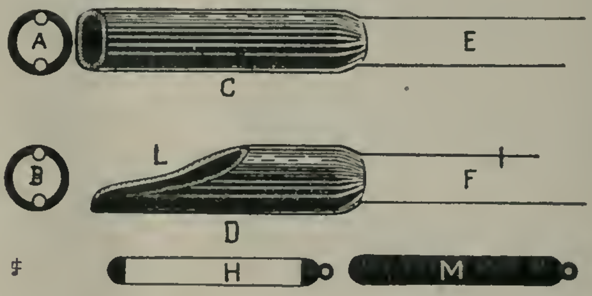
Diagnosis made of purpura and referred to internist. Father afterwards told me another ear, nose and throat surgeon advised removal of tonsil after a hasty examination. The father did not tell him of my diagnosis and of course did not consent, knowing what the outcome would be. The patient was treated by two internists and in about two weeks after I saw her she began to bleed, first from the bladder and then from under the skin, and finally died after two or three weeks.

Metropolitan Building.

ESOPHAGOSCOPIC RADIUM SCREENS.

Dr. Chevalier Jackson, Pittsburgh.

The curative effect of radium in cancer is not yet sufficiently demonstrated to warrant its use in an operable case. But in the inoperable cases of esophageal cancer the results are so encouraging that further testing is justifiable. Efficient screening and large dosage are two essentials. The author has had such excellent satisfaction with a screen of hard rubber vulcanized on the end of the esophagoscope and on the capsule container as shown in the illustration that it is here published in the hope that it may aid others. With this combination any desired screening can be obtained and the irritating secondary ray developed on emergence from metal, can be practically entirely cut off, enabling the use of large dosage. With accurate placing under guidance of the eye, burning of healthy tissue can thus be avoided. The hard rubber screen can be vulcanized on the end of any form of esophagoscope by any first-class instrument-maker. Being vulcanized to the metal it cannot be accidentally detached. (Figure 1). A covering of hard rubber, C, is vulcanized on to the metal end of the esophagoscope, E. At L, is shown a special form of end arranged with an open side. A and B shows cross-sections of these tubes. M illustrates a capsule entirely covered with hard rubber and at H is a capsule whose ends only are covered.



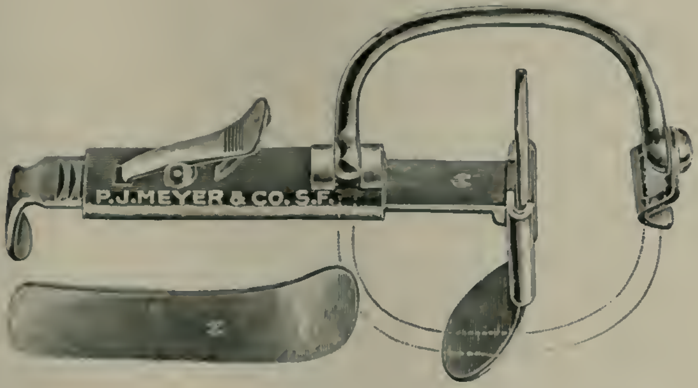
Westinghouse Building.

AN IMPROVED MOUTH-GAG.

Dr. A. S. Green and Dr. L. D. Green, San Francisco.

The mouth-gag devised years ago by Sewall has been a great aid in tonsil operations. It at once acts as a mouth-gag and tongue-depressor and gives a good exposure of the field of operation. Its failure to give universal satisfaction is probably due more to its improper use than to any great fault of the instrument itself.

If the blade is too short it will cause buckling of the tongue; if too long it may touch the epiglottis; in either event it may cause gagging or shut-off respiration. Care must be used to adjust the blade just long enough to fit over the base of the tongue, to raise the handle to the fullest extent and to maintain it in this position throughout the operation. This raises the mandible and permits free respiration.



There are, however, legitimate faults inherent in the instrument and in no way due to faulty manipulation. These objections we have eliminated in the instrument shown in the accompanying illustration.

By substituting a sleeve to hold the tongue-blade for the screw-device of the Sewall gag, we eliminate an inch or more of metal from projecting into the field of operation. This field is further enlarged by doing away with the rigid cross-bars and utilizing a half arm which can be swung to either side as necessary without removing the gag from the mouth. The upper teeth are held in a V-shaped lead trough, which swings on a pivot. This arrangement avoids breaking the teeth and its adaptibility helps to maintain the gag in the proper position.

With this instrument many operations can be done that are difficult to do with the older instrument, as for instance the Sluder operation, and the removal of adenoids. Ligating bleeding-points in the tonsillar fossae becomes easy because it allows a perfect view, so that the vessel can be caught with forceps and the ligature carried down over it without interference from cross-bars at the angle of the mouth.

Shreve Building.

GOOD RESULTS FROM USE OF NORMAL HORSE SERUM IN A CASE OF HEMORRHAGE FROM A RUPTURED ESOPHAGEAL VEIN.

Dr. Edwin Cobb, Marshalltown, Iowa.

Mr. A., age 38 years, farmer, Eldora, Iowa, was referred to me by Dr. Koeneman, July 7, 1913. For the last two weeks patient had a very troublesome cough, and yesterday blood was expectorated in amounts varying at times. Patient was brought to this city and placed in the hospital for absolute rest. Examination by both direct and indirect methods revealed a distinct oozing from region of the posterior wall of the esophagus. General examination, negative, especially lungs, and no tendency toward passive congestion. Patient was very anemic, with a distinct pallor present.

In spite of the ordinary measures taken for relief, such as ice bag, absolute rest, calcium chlorid and codein for cough, the oozing continued. Ten ccm. of normal horse serum was administered hypodermatically. Twelve hours later, 10 ccm. more was given in the same manner. The following morning the hemorrhage was much lessened. Two days later it was completely absent.

Patient was kept in the hospital for one week and then allowed to go home. Two weeks later patient returned stating that he had expectorated a little blood-tinged mucus. Twenty ccm. of the normal horse serum was administered in separate doses with absolute cessation of oozing and at the end of three days patient was discharged and placed under care of general physician. Two months later patient was seen and had gained thirteen pounds; general condition much improved, especially in regard to red cells, with no return of the hemorrhage in any form.

Later, I had occasion to do a nasal operation on a brother; the hemorrhage was far beyond the ordinary. There was evidently a hemophilic tendency in the family.

312 Masonic Temple.

A NEW MODIFICATION OF AN OLD ADENOTOME.

DR. A. C. HEATH, St. Paul.

The one drawback to all forms of adenoid curettes or adenotomes is that the adenoid mass is difficult to engage, as it often rolls under the cutting blade and much of it is missed. To overcome this difficulty I have added to the La Force adenotome, a double tenaculum forceps, each blade of the tenaculum shaped to follow the line of the vault and posterior wall of naso-pharynx; this tenaculum is situated within the box, so to speak, of the La Force adenotome.

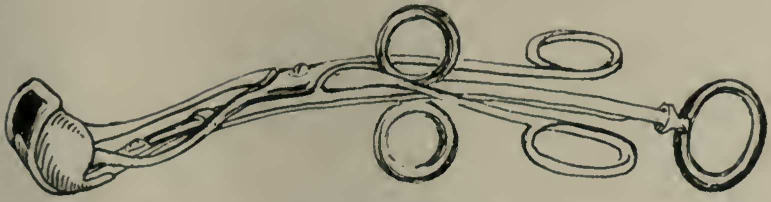


Figure 1: La Farce adenotome with handles of tenaculum forceps at right angles to adenotome.

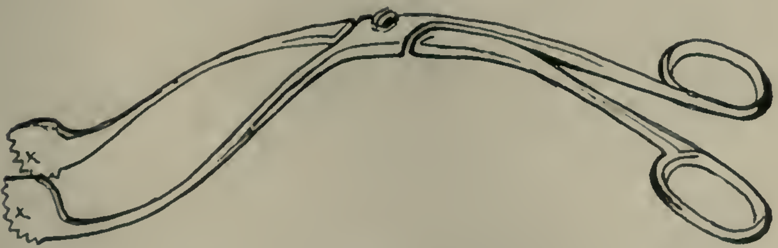


Figure 2: Tenaculum forceps separately with teeth (x) to grasp adenoid mass.

This tenaculum forceps when closed grasps the adenoid mass laterally from either side along its entire length, pulling it down and pressing it to the center of naso-pharynx; then the knife is pushed through the adenoid as it is thus firmly held. The adenoid is taken out very completely in this way and with very little difficulty.

Lowry Building.

SOCIETY PROCEEDINGS.

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

DR. ROSS HALL SKILLERN, CHAIRMAN.

Regular Meeting, April 15, 1913.

The Naso-pharynx as a Cause of Disease in Other Parts of the Body.

JUDSON DALAND.

The striking clinical picture produced by adenoids in children, i. e., the peculiar dull facial expression, the open mouth, the short upper lip, the enlarged and full red lower lip, the occasional dribbling of saliva, associated with diminished intelligence, the existence of mal-nutrition as evidenced by diminished growth, weakness, anemia and loss of weight, abundantly demonstrate the influence of naso-pharyngeal disease upon the bodily health. Conversely, when the adenoids are removed, the comparatively rapid disappearance of all these phenomena and the truly remarkable increase in growth, corroborate this statement. Nasal stenosis, from the internist's standpoint, may be viewed as complete or partial or intermittent, and causes varying degrees of mouth breathing. Nasal breathing regulates the temperature and humidity of the inspired air and also removes foreign particles, such as dust for example; therefore the mouth-breather loses this advantage. In consequence of mouth-breathing, catarrhal inflammation of the mucous membranes of the mouth, pharynx, larynx and tracheo-bronchial tubes are frequent, and when the inspired air requires moisture, it is secured from the mucous membranes of the respiratory tract, mouth and pharynx. In like manner dust and irritating particles frequently enter the bronchial tubes giving an added cause of irritation. The inspired air, which is prevented from traversing the nasal chambers in nasal stenosis and therefore passes directly through the mouth into the bronchial tubes, may be viewed as unprepared for entrance into the lungs and the delicate mucosa is irritated; and I incline to the opinion that spasm of many of the finer bronchioles is induced; thus shutting off air from many alveoli which remain more or less constantly in a collapsed or semi-collapsed state. Physical examination of the lungs clearly demonstrates that breathing through the mouth produces a vesicular murmur harsher than normal, and that inspiration and expiration are more nearly of the same length; whereas in normal nasal breathing the entire act of inspiration murmur is much longer than the expiratory murmur, and the quality of the vesicular murmur becomes soft and breezy and characteristic of normal pulmonary breathing. Auscultation, therefore, corroborates the theory that in mouth breathing the air is prevented from penetrating freely and easily into all parts of the lung, and does not enter many alveoli, and therefore the resultant inspiratory murmur becomes harsher and possesses less of the vesicular element than normal. If a comparison is made of the vesicular murmur produced by normal nasal breathing with that of mouth breathing, the difference described is readily recognized.

Nasal stenosis, by causing insufficient pulmonary expansion, induces corresponding alterations in the chest; the ribs become more oblique, the vertical diameter increases, the transverse diameter decreases, the inferior costal angle become more acute; thus predisposing to disease, more especially tuberculosis, and as has already been stated, the air inspired by a mouth-breather induces tracheo-bronchitis, laryngitis and also spasmodic croup and asthma. As many alveoli are habitually collapsed or only partially filled with air with each inspiration, only partial oxygenation and decarbonization is possible. Naturally, this interferes with metabolism and consequently with growth. Anemia is commonly observed, usually of a moderate grade, and, as a rule, the loss of hemoglobin is greater than the loss of erythrocytes, constituting chloro-anemia.

As the diminution in hemoglobin is due in part to a deficient supply of oxygen, this form of anemia is rarely influenced by ordinary remedies; but when nasal obstruction is removed and the patient again forms the habit of breathing normally the blood recovers its physiologic balance. Any interference with oxygenation and decarbonization of the blood acts deleteriously upon the individual cells of the body and produces an alteration in metabolism, and in all probability chemical bodies form, circulate in the blood, and may be more or less toxic.

Nasal stenosis in the young produces morphological changes in the mouth; the dental arches become narrow and, in consequence, the teeth show want of alignment, are crowded and displaced and occlusion becomes imperfect, thus markedly interfering with mastication, which in turn leads to disorders of digestion. Under these circumstances the palatine arch is high and encroaches upon the nasal spaces and the voice is more or less altered. In permanent and complete nasal obstruction the sense of partial suffocation, shortness of breath and asthmatic attacks may occur. When pressure is exerted upon the septum asthma may be induced.

Intermittent, complete or partial nasal obstruction is frequently due to relaxed and enlarged turbinal bodies, due to venous stasis, which in turn is commonly due to excessive fatigue or nervous exhaustion, and may occur from shock. It may be diurnal but is more apt to be nocturnal, and usually causes complete obstruction of the pendant nostril. Upon turning the head this condition is frequently reversed. Not infrequently nocturnal mouth breathing is thus induced, usually associated with snoring, frequently causing insufficient oxygenation so that the individual awakens in the morning after sleep feeling unrefreshed.

Partial nasal obstruction is frequently overlooked and may sometimes be caused by a very small adenoid obstructing one of the posterior nasal orifices. Spasmodic croup in children is often caused by dryness of the laryngeal and pharyngeal mucous membrane, which is often relieved when water is taken at short intervals.

The usual infective organisms of the naso-pharyngeal tract are: Influenza, streptococci, staphylococci, pnemococci and diphtheritic and syphilitic infection, and may be loated in the tonsils, nasal passages or the sinuses including the mastoid. These infections may be acute or chronic, and may be limited to one or more of the tonsils or one or more of the sinuses, and may remain local or extend to adjacent structures or become constitutional. In certain cases that may be called carriers, some of these micro-organisms may be constantly present in the nose, sinuses or pharynx and the individual be apparently healthy. Such persons may innocently spread diseases, such as influenza or diphtheria. It is now well established that when leprosy invades the nose it may be transmitted by nasal discharges. An apparently normal naso-pharynx may contain active pathogenic organisms. Frequently recurring attacks of influenza may be really acute exacerbations of chronic influenzal inflammation of the nasal passages or sinuses.

Headaches, mild or severe, recurrent or constant, may be due to frontal sinusitis; and when the exit is obstructed and the secretions retained, the pain may become agonizing. In sphenoidal sinusitis the orbit contents may be involved by extension of inflammation and ocular disturbances may be induced reflexly. Meningitis, by extension, may be caused by suppurative inflammation of the sphenoidal, ethmoidal or mastoid cells and in the latter a septic thrombus may also occur. Suppuration of the superior maxillary sinus may be the underlying cause of facial neuralgia.

Mild or severe septicemia or pyemia, which at times may be recurrent, may be evoked by a streptococcus sinusitis, tonsillitis or pharyngitis. Ostitis, periostitis, arthritis, periarthritis, and arthritis deformans have been traced to a septicemia, laryngeal or nasal in origin; and a similar origin may be ascribed to certain cases of anemia and pernicious anemia. It is now generally believed that general pneumococcus infection, accompanied by lobar pneumonia, may arise from a local pneumacoccic infection of the mouth, pharynx or nose.

Many cases of septic polyarthritis are incorrectly diagnosed as acute or chronic rheumatism. Although the origin of the sepsis may be in any part of the body, it is most commonly situated at the root of the teeth, the tonsils or in the nose or sinuses. Unless the septic nature of the arthritis is recognized and the focus discovered, recurrences are common. The following case illustrates the common error of mistaking acute septic polyarthritis for rheumatism:

Case 1: Female, aged 18 years, stated that nine years ago she had severe tonsillitis, followed by so-called acute polyarticular rheumatism involving the joints of the left upper and lower extremities and the right wrist, with fever and delirium. During convalescence which occurred three months later, observed marked weakness, dyspnea on exertion, tachycardia and cardiac palpitation; and examination of the heart showed marked mitral stenosis. When first seen six years later she complained of recurring attacks of sore throat and rheumatism of the throat, neck and shoulders and so-called rheumatic pains in various parts of the body. The tonsils were much enlarged. These symptoms persisted. The tonsils which were removed one year later by Dr. Walter J. Freeman, were small, and showed in each, decomposing cheesy material and an abscess cyst of the left tonsil. Since then there has been no return of the so-called rheumatism or cardiac symptoms. Cardiac compensation is so complete that a game of tennis produces no symptoms of cardiac insufficiency. It is evident that the septic focus in the tonsils was the cause of acute polyarthritis and mitral valvulitis.

Case 2: A boy, aged 16 years, suddenly became blind in the right eye. Dr. L. Webster Fox diagnosed embolism of the retinal artery. The patient gave a history of so-called polyarticular rheumatism. Examination of the heart revealed the usual signs of mitral valvulitis. Sepsis was suspected, and although no focus could be detected anywhere, and the patient denied nasal symptoms, examination by Dr. Ross H. Skillern revealed suppurative ethmoidal sinusitis, which was drained. The patient has not returned for re-examination; nevertheless, it is probable that he has escaped recurrence of acute septic arthritis and endocarditis.

That mild septicemia may produce moderate anemia is well recognized; but that pernicious anemia may be so induced is not generally known. In a male, aged 62 years, presenting the complete clinical picture of pernicious anemia, examination of the blood showed that the hemoglobin was 25 per cent, the red blood cells 1,180,000 or 22 per cent and there were present many microcytes, many macrocytes, poikilocytes and occasional megaloblasts, leucocytes 2,200 per cmm. Dr. George M. Hughes and Dr. J. W. Kennedy drained a suppurative tendo-sinivitis and recovery followed.

DISCUSSION.

Dr. C. F. Adams: The accessory cavities of the nose, namely the maxillary sinus, the frontal sinus, ethmoid cells and sphenoid sinus may implicate in their disease the orbit and the optic nerve. This is most apt to occur in diseases emanating from the ethmoid cells, for the latter are separated from the orbit only by the thin lamina papyracea, which, moreover, sometimes has gaps in it.

The most posterior ethmoid cell not infrequently extends into the small wing of the sphenoid and then comes into closer relation with the optic nerve because it now borders on the optic canal, and it may extend so far beyond the median line that it actually adjoins the optic canal on the other side. Otherwise, the wall of the optic canal is formed in part by the sphenoid sinus.

In the optic canal the dural sheath of the optic nerve is transformed into the periosteum of the bony canal. The optic nerve, therefore in this situation is enveloped only by the delicate pial sheath which in most places is attached to the periosteum and on the upper side is actually adherent to it. The first branch of the trigeminus runs through the cavernous sinus and in this part of its course lies close to the lateral surface of the body of the sphenoid. This is the reason why it is may react under the form of neuralgias to an inflammation of the mucous membranes of the sphenoid sinus as is shown by the following case: C. R. V., age 36 years, driver of a delivery wagon, in whom two years ago a facial neuralgia began on the right side, worse over the eye, growing worse for the past two weeks. Vision normal. Septum deviated to the right to such an extent that the cavity could not be explored. Slight post-nasal discharge. With iodin applications to the nares and insufflation of cocain and bismuth his neuralgia was immediately relieved and eventually cured.

Axenfeld states that in cases of orbital cellulitis, in which the examination is negative, the original sinusitis which occasoned the obltal condition is progressing on account of the absence of drainage. Reports of such cases are numerous.

These cases show that there is a close relation between the lymph and blood supplies of the naso-pharynx and the eyes, and the exciting cause is adenoids. I claim that adenoids by interfering with the nasal circulation and causing catarrh, at the same time also interfere with the circulation of the eyes producing a hyperemia and a disturbance of the choroidal pigment, which may be readily discerned with the opthalmoscope, and when adenoids are removed in children before too much damage has been affected the eye will return to normal and the amblyopia will in a few weeks disappear.

Dr. Thomas H. Fenton: The work of the rhinologist contributes enormously to the general welfare. We are broadened by Dr. Daland's description of conditions following disturbances in this region, for instance, arthritis, which might be regarded as due to other causes. We have heard from Dr. Daland how the general health may become affected, temporarily or permanently, a result of disease of the sinuses, tonsils or adenoids. We note the local manifestations, turgescence, digestive disturbances, and lithemia. The blocking of the sinuses affords a resting place for germs.

A young woman, facial expression of pain for past three weeks, was victim of extraordinary bullar, ocular and supra-orbital pain. Atropin had been applied, failing of relief sought other advisers. Found no obstructive or inflammatory changes; optically perfect. The case was referred to Dr. Randall, who found blocking of one of the outlets,—passing of a probe and releasing the secretion gave immediate relief.

From the standpoint of the opthalmologist, I cannot say that the data in reference to sinus disease is as clear as we should like to have it. The classification seems to be very much at fault.

Dr. Wm. Egbert Robertson: I regret that I did not have the privilege of hearing Dr. Daland's contribution in its entirety. The subjects which he has discussed are of very great importance as they have a bearing, not only upon the work of the specialist, but even more particularly upon the work of the general physician, who is often, usually, the first physician to be consulted by the patient. Curiously, however, not only the family doctor fails at times to recognize sinus and nasopharyngeal disease as the primary focus of a general infection or of a local infection or reflex, but even the specialist may not discover it. I recall two interesting cases at this moment—one of them had recurring attacks of iritis with hypopyon first in one eye then the other, and was referred by the rhinologist to an opthalmologist and later to me. Transillumination, as is so often the case, failed in this instance to reveal the disease. She had very large middle turbinates which interfered with drainage, and I suspected not a purulent condition but rather the presence of old granulation tissue in the sinuses particularly the ethmoid. An x-ray made by Dr. Pfahler confirmed this, and I have since been able to prove the correctness of the view by having the ethmoid cells cleaned out after snaring off the middle turbinate.

(To be continued.)

THE

LARYNGOSCOPE.

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to The Laryngoscope.)

FIXED SOURCES OF ALL HEMORRHAGE FROM TONSILLECTOMY AND ITS ABSOLUTE CONTROL.*

Dr. J. Leslie Davis, Philaelphia.

Four years ago I had the pleasure of bringing before your Society a new method of tonsillar enucleation. For several years prior to that time I had been trying the various and sundry operations on tonsils, as advised in text-books, with varying and sundry results. Rarely, however, could any result be called satisfactory, the reason for which, as I eventually found, being that by no method practiced at that time could a clean and complete enucleation be uniformly procured. That complete and lasting relief from diseased tonsils could be assured only through their complete removal I had already become thoroughly convinced, and with that object in view I gradually evolved the method described to you then and demonstrated in a clinic at the Moses Taylor Hospital.

As recently, even, as that date the proposition of complete removal of the faucial tonsils had to be defended, since the almost universal practice was to cut away merely a part of the tonsil, usually only that part which might be found projecting into the oropharynx beyond the margins of the faucial pillars. The operation was technically termed tonsillotomy, though a popular expression used both by physicians and the laity, "snipping off the tonsils," clearly expressed the process.

Thus I came to you commending and demonstrating my method of enucleation under the title, "Tonsillectomy, why, when and how."

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*Read before the Lackawanna County Medical Society, Scranton, Pa., February 3, 1914, and demonstrated in a clinic at the Moses Taylor Hospital the following day.

Owing to the incomplete stage of research work that I was then carrying out in the anatomical laboratories of the Jefferson Medical College, on the circulation of the head and neck with particular reference to the tonsils, I postponed the publication of that paper till the fall of 1911, when it was read before the Section on Eye, Ear, Nose and Throat, of the Pennsylvania State Medical Society and published in the November number of the *Pennsylvania Medical Journal,* under the title, "Tonsillectomy, why, when and how: with a preliminary report of investigations concerning the blood supply and anatomic relations of the faucial tonsils."

Since that time I have continued to operate by the same method, and have been gratified to learn that some of you, after a series of several hundred cases, report the same satisfactory results that I claimed—namely, a complete, clean enucleation, with no traumatism, no destruction of or injury to any surrounding structure, leaving each faucial pillar intact, smooth-edged and with perfect symmetry of the two sides of the throat, and attended with or followed by less hemorrhage than by any other method I have known.

I believe the same to be true to-day: But there was one phase of the subject left in a stage of marked incompleteness, as I have learned through further research, so it is to correct an error in my earlier opinion and to give you the benefit of my latest conclusions that I come to you at this time. No tonsil can be enucleated by any method without the severing of certain blood vessels, and any severed vessel affords always a possible source of hemorrhage. Thus nearly every operation by any method has been attended by more bleeding than would be desired, if the operator knew a satisfactory means of control, while some bleed to the point of alarm, and more than a few deaths even have resulted therefrom. It is a lamentable fact that of all those in the medical profession who would dare do any kind of surgical operation, probably more have had the temerity to attempt operation on the faucial tonsils with less knowledge of their anatomy than upon any other part of the human body. In fact, I doubt if any other part of the human body has been subjected as frequently to bad surgery as has the faucial tonsil, or if in any other part of the body blood vessels have been severed with as careless concern and their subsequent conduct left to chance as in operations upon the tonsils. This is not a merely casual remark, but stated advisedly from twelve years of observation. I used to think that most of the cases of direful results of tonsil operations, cited by those or friends of those on whom a tonsil operation was advised, were greatly exaggerated or even entirely fictitious. But after a few cases that have been brought to my attention in more recent years, my credulity has developed almost to the point of accepting the most fanciful citations as fact.

Why have so many men, who likely would shrink from attempting even the most minor surgery, been emboldened to operate upon the tonsils? Surely there must be a good reason, and my object in calling attention to this state of affairs is not to deter any one from attempting surgical work that he *is capable of doing,* but to emphasize the *importance of preparation* for the performance of an operation that has long been regarded too lightly. I believe in the conscientiousness of the average medical practitioner, and it is to those who are ever willing to improve their methods that I appeal.

Probably nearly all medical men to some extent study and observe and thereby make use of the accumulated experience of their predecessors; and likely most of us feel justified in attempting what others, under similar circumstances, have done and absolve ourselves from censure if we meet with no greater success than did they. A few, however, are not so easily contented and break away from the beaten path.

When it had been taught for years by our best-known laryngologists that to operate on the tonsils was a minor and simple procedure that hemorrhage *might* follow, but that the quantity of blood lost was not often sufficient to be *serious,* and nothing further was mentioned as a means of control, who could blame anyone who "snipped them off" and gave no further thought, unless hemorrhage did "become alarming?"

I believe that not only should all hemorrhage at the time of operation be regarded as serious till under control, but that no patient should be allowed to leave the operating room till every possible source of subsequent hemorrhage is obviated.

In my review of the literature on hemorrhage from tonsil operations I consulted over thirty text-books on the nose and throat, the authority upon which the majority of practitioners depend for instruction in preparing for an operation, or to which they appeal in an emergency. In only two did I find mentioned any particular location within the tonsillar fossa from which hemorrhage might be likely to occur; none offered any means of its control immediately following operation; while the majority did not suggest any need for attention to hemorrhage unless it should become "serious" or "alarming."

Consider the following which are taken from text-books as measures to be tried: Ice applied internally and externally; very hot applications or hot gargles; local applications of astringents or styptics, or gargling with them; pressure, either held in place by an attendant or by variously devised clamps; if bleeding points can be seen they may be seized with forceps and hemorrhage stopped by compression or torsion, or the forceps may be left in place; suturing the faucial pillars together or suturing the pillars over a pledget of gauze; sitting the patient upright in bed that when sufficient blood has been lost, syncope will lower the pressure and the hemorrhage cease; ligation of the external carotid artery.

Objection to the whole list of measures enumerated can be summarized briefly as follows: Those that may be classed under mild or conservative measures are too uncertain to rely upon where the loss of blood has assumed or is even approaching a "serious" or an "alarming" stage, to say nothing of the discomfort to which the patient is subjected in their application.

All the rest, which may be termed radical or extreme measures are in a more or less degree detrimental to the patient's constitutional condition or to the perfection of the local result.

Prior to one year ago I had considered the suturing of the faucial pillars together or over a roll of gauze the safest final resort in hemorrhage and had never failed to find that procedure effective. I cannot conceive of any situation, however, in which so extreme a measure as ligation of the carotid artery would be necessary or in any wise justified.

Those authors who state that "if bleeding points can be seen, they may be seized, etc.," have erred in the admission of the *"if,"* for, I believe that with the *rarest* exception, *definite* sources of all hemorrhage can be localized and effectively controlled. It was the localizing of this fixed source of all severe hemorrhage that led me to abandon the pillar suturing process for the simpler and safer technic that will herein be described.

The phenomenon known as hemophilia, of course, is a too well established reality to be denied, but that the frequency of its occurrence has been greatly exaggerated there is not the shadow of a doubt, and the term "bleeder" has eased the conscience of a multitude of occasional surgeons and shielded the inability or futile efforts of the more experienced.

To a large degree the fault has existed in the erroneous opinions and teaching concerning the circulation of blood to and from the tonsil. Before taking up, then, the means of hemorrhage control, which is the primary object of this paper, a brief consideration of the structures immediately surrounding the tonsil, the tonsillar setting, is necessary to its full appreciation.

The faucial tonsil is an irregularly spherical glandular body, about three-fourths enclosed within a membranous capsule which is glistening on its outer surface and from the inner surface of which the tonsillar tissue springs, set between the palato-glossus and palato-pharyngeus muscles, with its capsular surface in contact with the aponeurosis of the superior constrictor muscle, and its exposed surface directed inwardly toward the isthmus of the fauces.

The outer, capsular surface of the tonsil, thus fitted into this muscular encompassed recess, is normally unattached to the aponeurotic wall except at the margins of the palato-glossus and palato-pharyngeus muscles where the attachment is circumferential about the margin of the inner, exposed surface of the tonsil. There is no stem or stump forming a deep attachment by which the tonsil is held or through which the blood vessels pass as some seem to have believed. Hence all blood supply to the tonsil must come from without the tonsillar recess, penetrating the recess wall and then the tonsillar capsule. It is upon the source, course, and ultimate distribution of the arteries entering the tonsillar recess that anatomists have differed and surgeons have been mislead.

In the preliminary stage of my research, I agreed with the anatomists, and stated in my paper three years ago that the blood supply to the tonsils seemed to "include branches from the dorsalis linguae; from the lingual; ascending palatine and tonsillar branches from the facial; a small palatine branch from the ascending pharyngeal; and a small branch from the descending palatine—the tonsillar artery carrying the principal supply.

It is perfectly true that the arterial branches enumerated reach the tissues which enter into the formation of the tonsillar fossa, but they do not all perforate the wall of that fossa nor do they all eventually reach the tonsil itself. The tonsillar branch of the facial which has generally been supposed to be the principal artery to the tonsil seems not to enter into the tonsillar circulation at all, but with an anastomotic branch from the dorsalis linguae it supplies the plica triangularis and the muscles entering into the formation of the wall of the lower half or two-thirds of the tonsillar fossa. The tonsillar branch of the ascending pharyngeal sends twigs into the upper parts of the wall of the tonsillar fossa, but like the tonsillar artery, they *do not* pass through the muscular fibers, through the capsule and into the tonsil itself.

Thus there remain two arteries, the ascending palatine branch of the facial and the descending palatine branch of the internal maxillary from which by an anastomosis outside the fossa a single artery is formed that enters the fossa at its superior extremity, (Figure 1), passes downward between the capsule and the muscular aponeurosis for a distance of about one-half inch before penetrating the capsule to reach the tonsil, (Figure 9). Thus, my observation of four years ago that the blood vessels, both arterial and venous, penetrated the tonsillar capsule near its midpoint, supero-inferiorly, and from a quarter to one-half inch from the margin of the anterior pillar was correct, but my erroneous deduction was that these vessels were derived from the severally specified sources, and that they entered by way of the anterior pillar directly into the tonsil.

Numerous, then, as are the small arterial branches surrounding the tonsillar fossa none penetrate directly through the wall and the capsule into the tonsil. One must admit always the possibility of slight variations in the positions and branches of arteries and even of anomalies, but the distribution and course of vessels as above described I believe to be present in at least 95 per cent of all cases. This estimate is based upon clinical observations and upon anatomic research in the Daniel Baugh Institute of Anatomy.

Accompanying the artery there is a vein that runs from the tonsil upward, passing out of the fossa at the point the artery enters, and joins the palatine plexus just above the fossa. A small vein also emerges from the tonsil at the same site as the other vein and runs downward between the capsule and the wall of the fossa to reach the pharyngeal plexus. Thus in the average case by the enucleation of the tonsil, one artery and two veins are the principal vessels severed, and since the venous oozing is of temporary duration, there remains but the one artery to be dealt with in the control of hemorrhage.

By my method of tonsillar enucleation this artery is usually severed by the snare at the point of its entrance into the tonsillar fossa (Figure 10), though occasionally at its point of entrance into the tonsil, one-half to three-quarters of an inch inferiorly, behind the external border of the anterior pillar.

When the latter result occurs, the remaining free portion of the artery may be left dangling within the fossa. (Figure 14). There is no doubt that this condition has misled many in the belief that they were dealing with a "bleeder," since the various applications or attempts at pressure to what seemed to be the point of hemorrhage only served to shift the loose end of the artery to a different location—hence the conclusion that "as soon as one bleeding point was controlled another would start."

It matters not, however, where the vessel be severed, at its entrance into the fossa, at its capsular penetration, or at any intervening point, the process of hemorrhage control is the same; namely, grasp the artery at its entrance into the superior extremity of the fossa, pass a suture ligature of No. 1 catgut underneath it and tie. (Figure 11). By retracting the superior margin of the anterior pillar this artery can be demonstrated following the enucleation of every tonsil. At the site of its entrance into the fossa there is a slight, stump-like projection of connective tissue, (Figure 10) through which the artery and vein pass, which renders the cut end of the artery quite accessible to the grasp of the hemostat. (Figure 11.) The retraction of the pillar, and the grasping of the artery must be done with care to avoid injury to or laceration of the wall of the fossa, since the muscles forming the wall are exceedingly thin and of delicate fibers. Laceration of the wall may be attended by more or less hemorrhage from the small arterial branches supplying the surrounding muscles. (Figure 1). A seeming exception to the above stated arterial distribution is occasionally seen when the artery is severed near its tonsillar entrance and remains adherent to the wall of the fossa instead of dangling as previously cited. In such cases the bleeding is seen to flow near the center of the fossa wall.

Occasionally a bleeding vessel may be found to persist in or near the base of the fossa, being one of the small terminal branches of the tonsillar or dorsalis linguae arteries that has penetrated the wall or the plica into the fossa. If so, it should be grasped and ligated the same as the other and more important artery. I have found it necessary to do this in about two per cent of cases. Regarding the artery in the superior extremity, it is my custom now to ligate it immediately following the removal of every adult tonsil, whether there be profuse bleeding or not. In children they are ligated if the bleeding does not cease entirely within a few minutes. In other words every patient must leave the operating room with perfectly dry tonsillar fossae.

When through extra-capsular infections, particularly peritonsillar abscesses, the capsule has become adherent to the fossa wall at any point, the freeing of such adhesions in the enucleation process usually leaves a rough, abraded muscular area from which there may result considerable capillary oozing, or even a freely bleeding small artery which has penetrated the muscular wall from without. If the resulting hemorrhage be an oozing from the roughened surface, an application of ten per cent nitrate of silver will control it; should there be a distinct vessel, however, then a suture ligature should be used as in the other instances.

I have never had to use more than two ligatures in any tonsillar fossa, and I have never had any bleeding subsequent to the patient's leaving the operating room since I have adopted this method of control. Thus the simplicity of its application, the security of its control of hemorrhage, the absence of any interference with function of the pillars, either immediate or ultimate, and the absolute freedom from discomfort to the patient I feel should justify my full commendation of the method herein described.

The application of this technic is intended to follow only the complete enucleation of tonsils and since I still believe my own operation for tonsillectomy to be the most satisfactory one yet devised, I have had the artist, Miss Peters, make a series of drawings which, with the legend beneath each figure, will more clearly elucidate each step of the process than my verbal description as published some years ago.

The following drawings which are intended to illustrate each successive stage of the technic were sketched from the actual operation, but not all from the same patient.

Ether anesthesia is preferred in all cases; a straight operating table is used, the patient lying flat upon the back with head turned at an angle of forty-five degrees to the right, assistant on left, sponge nurse back of operator, light reflected with head mirror.

1700 Walnut Street.

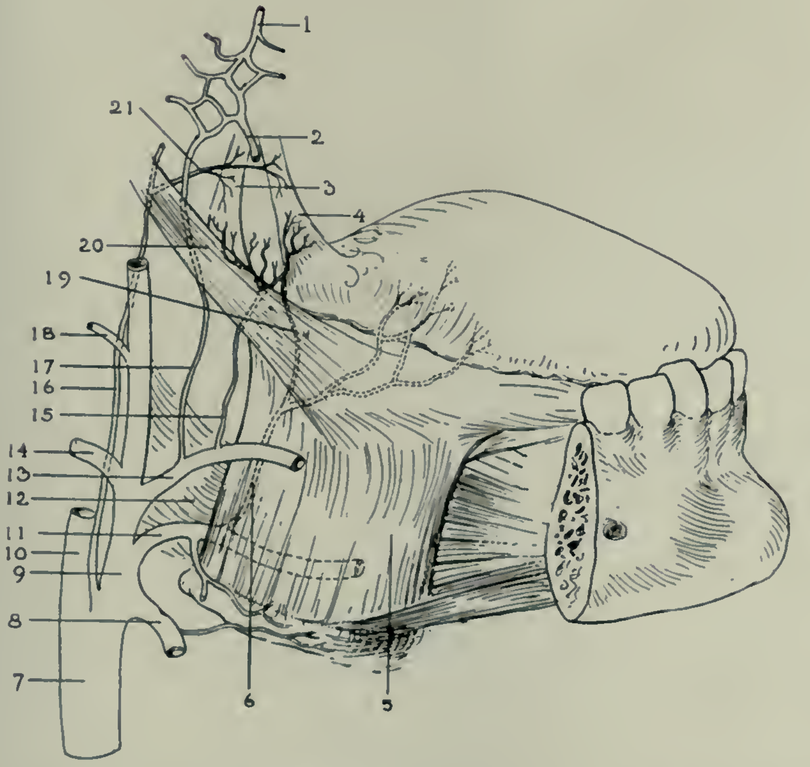

Figure 1. Diagram showing the blood supply to the tonsil and the surrounding structures. 1. Descending palatine branch of internal maxillary a. 2. True tonsillar a.—formed by an anastomosis of descending palatine and ascending palatine branches. 3. Palato-pharyngeus m. (Posterior tonsillar pillar.) 4. Palato-glossus m. (Anterior tonsillar pillar.) 5. Hyoglossus m. 6. Dorsalis linguae a. 7. Common carotid a. 8. Superior thyroid a. 9. External carotid a. 10. Internal carotid a. 11. Lingual a. 12. Middle constrictor m. 13. Facial a. 14. Occipital a. 15. So-called tonsillar a. 16. Ascending pharyngeal a. 17. Ascending palatine a. 18. Posterior auricular a. 19. Tonsillar branch of dorsalis linguae a. 20. Styloglossus m. 21. Tonsillar branch of ascending pharyngeal a.

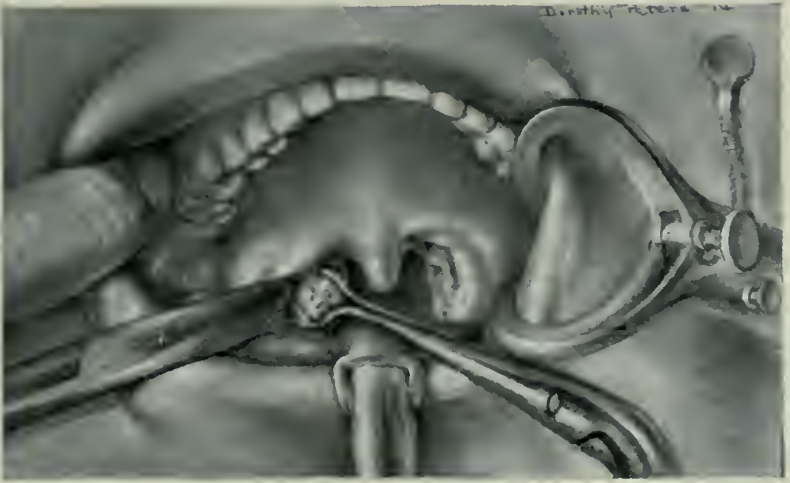

Figure 2. Anesthetizer's finger retracting cheek. Scissors, closed, held in operator's left hand, used merely as a retractor drawing forward the anterior pillar to enable the submerged tonsil to be grasped by tenaculum in operator's right hand without catching any part of the pillar. Tongue depressor is held by assistant.

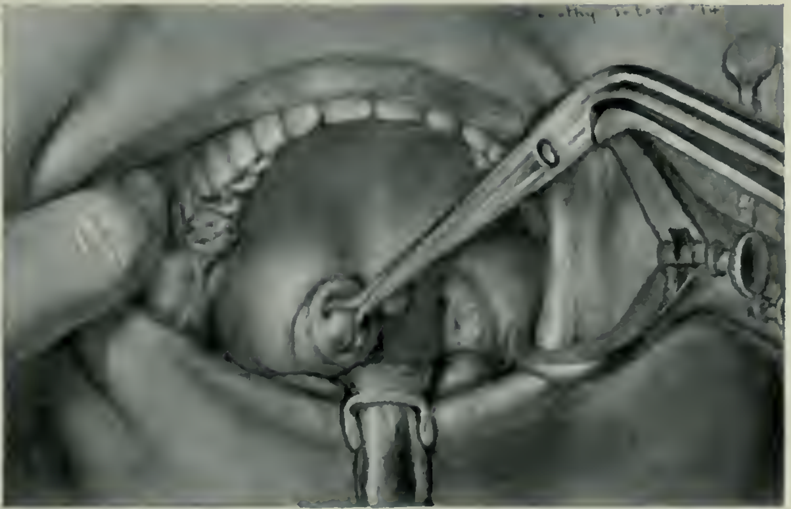

Figure 3. Showing imprint of the body of the tonsil contained within the fossa back of the anterior pillar. The plica triangularis is seen extending inward from the margin of the pillar over a portion of the free surface of the tonsil.

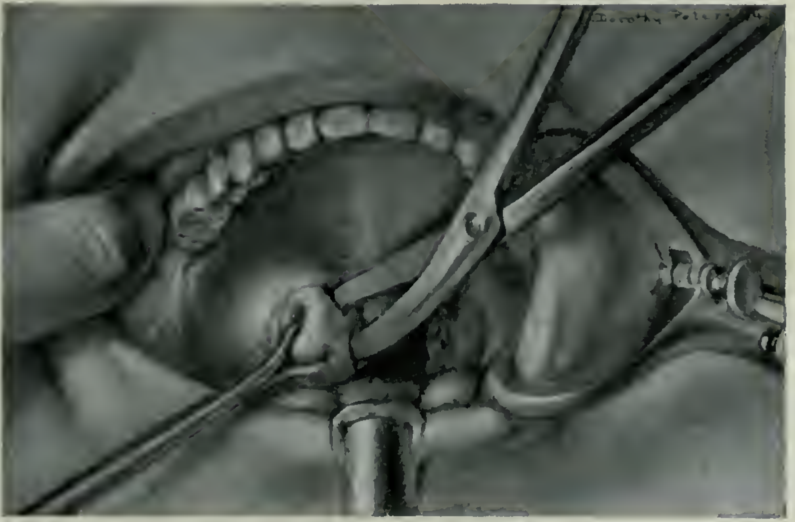

Figure 4. Cutting with scissors into tonsil, anterior to margin of posterior pillar, the tonsil being drawn forward and outward with tenaculum.

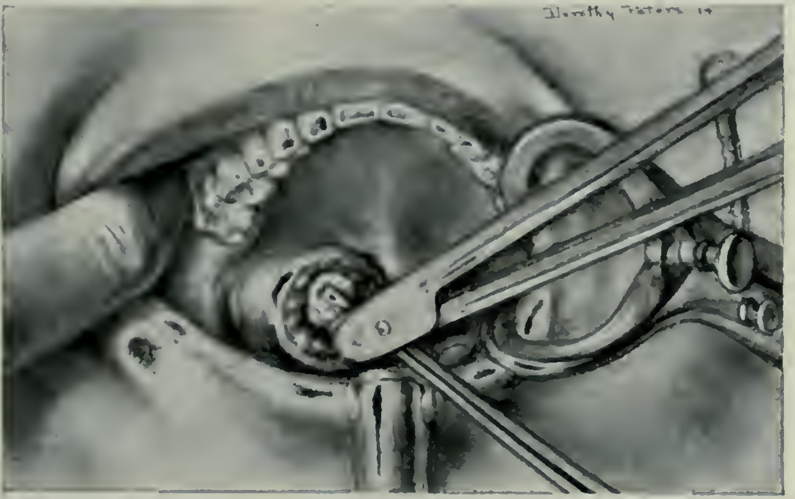

Figure 5. Tonsil drawn by tenaculum towards opposite side—while anterior incision is made into tonsillar tissue posterior to margin of anterior pillar. These two incisions, about one-quarter of an inch deep are made so that they unite in the upper part of the tonsil above the tenaculum. The object of these incisions is to permit the tonsil contained within the capsule to split when traction is made with the second tenaculum (Figure 6) and thus result in complete eversion of the tonsil. Note that each incision is made into the tonsillar tissue near the margins of the pillars but not attempting to separate the tonsil or capsular attachment from the pillars.

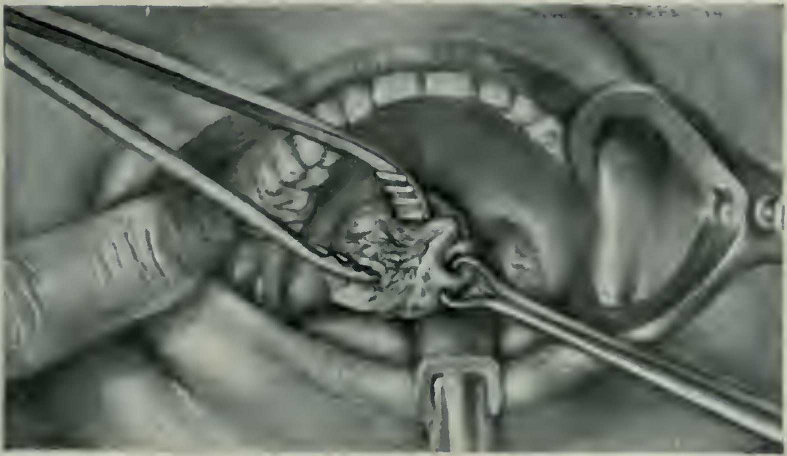

Figure 6. Showing the second tenaculum being applied, grasping the tonsil within the anterior incision made with scissors. The first tenaculum is then removed and by traction with the remaining tenaculum the eversion process is completed. The grasp is made within the anterior incision because the greater part of a submerged tonsil is always imbedded back of the anterior pillar. For this reason it will be seen when the tonsil is removed that the anterior incision was practically through the middle of the tonsil, from which point traction with the second tenaculum more easily and evenly accomplishes the eversion.

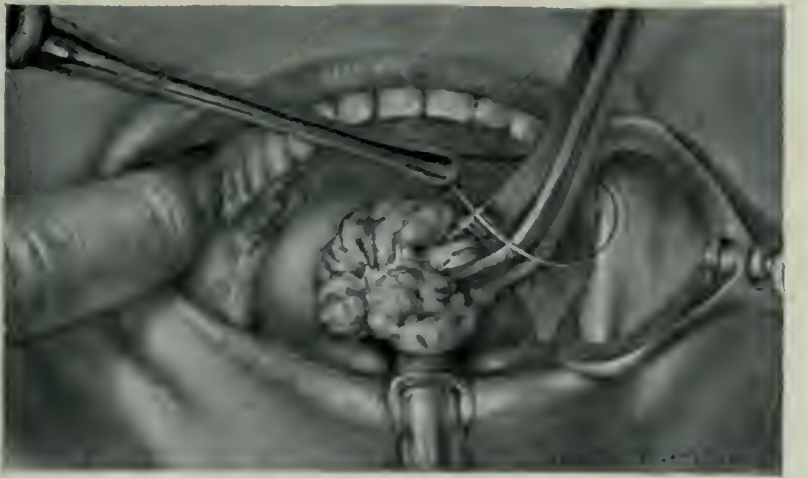

Figure 7. The tonsil perfectly everted. Note from the position of tenaculum how much tonsillar tissue was turned out from behind the anterior pillar. In this stage the whole capsular surface which fitted convexly into the concave fossa is entirely without the fossa, completely everted and held simply by the marginal, circumferential attachment to the anterior and posterior pillars, around which line the snare is then placed.

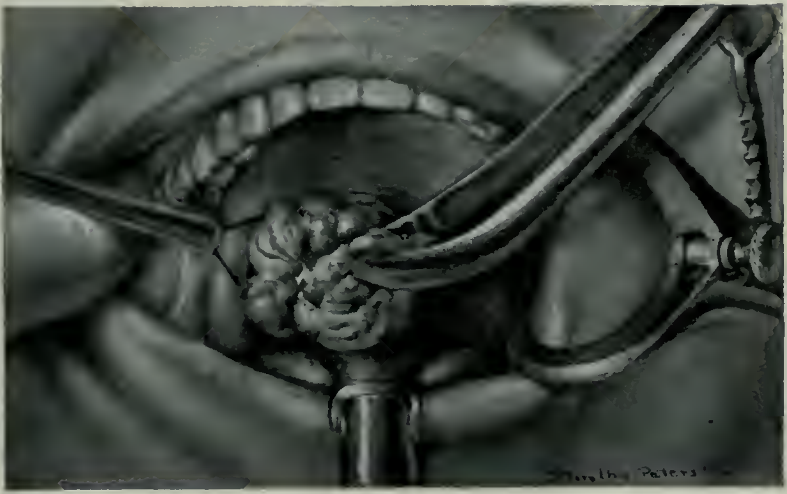

Figure 8. Snare placed back of all out-turned tonsillar tissue and drawn against the capsular attachment to the pillars. As the screw is run down by the assistant the operator, holding to the shaft of the snare with one hand and tenaculum with the other, directs the gradually reduced loop of wire in the proper line of severance.

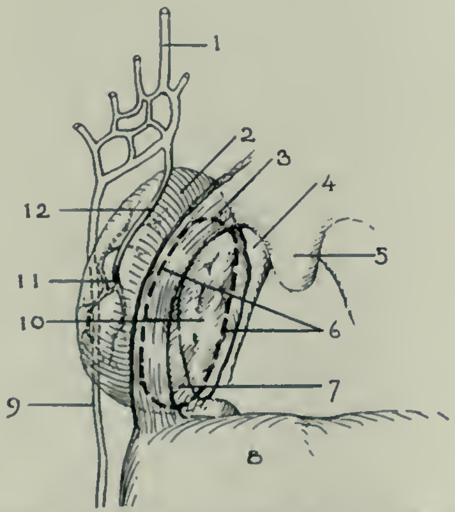

Figure 9. Diagram showing line of capsular attachment to faucial pillars, and location of arterial penetration of capsule. 1. Descending palatine branch of internal max. a. 2. Capsular surface of tonsil. 3. Anterior faucial pillar. 4. Posterior faucial pillar. 5. Uvula. 6. Line of capsular attachment to faucial pillars. This also marks the line of capsule severed by the snare after the tonsil has been everted. 7. Margin of plica triangularis. 8. Base of tongue. 9. Ascending palatine branch of facia a. 10. Faucial or exposed surface of tonsil. 11. Entrance of true tonsillar a. into tonsil, showing also irregular distribution of arterial branches within the capsule. This point of entrance is occasionally slightly more posterior, though all variations could probably be covered by a radius of one-sixth inch. 12. True tonsillar a. and its course from entrance into fossa to its entrance into the tonsil, running between the capsule and aponeurosis of the muscular wall. Occasionally the superior portion of its course is more posterolateral to the tonsil, though eventually entering the tonsil near the same point as here specified.

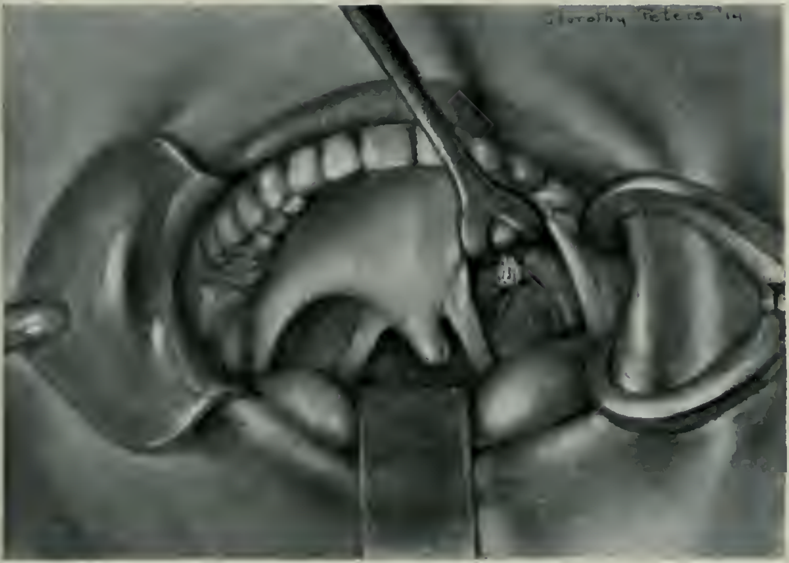

Figure 10. The right fossa shows the position of faucial pillars immediately after the enucleation has been completed. Each pillar margin is left smooth and perfectly intact. On the left side the anterior pillar is retracted superiorly to expose the point at which the true tonsillar artery enters the fossa and the vein passes out. These severed vessels with surrounding connective tissue leave a small projecting stump which facilitates the grasping of the artery with the hemostat. Radiating downward from this stump can be seen two or three small vessels running beneath the muscular aponeurosis. These are veins that permeate and at times penetrate the superior constrictor muscle wall from without, running upward to join the palatine plexus.

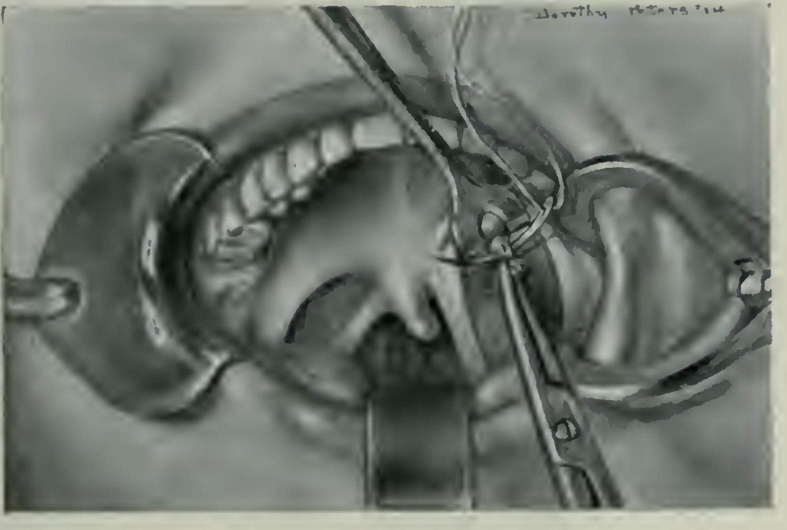

Figure 11. Showing how the stump is grasped with hemostat and the introduction of the suture ligature with short slightly curved needle. The needle penetrates the tissues on the floor of the fossa at just sufficient depth to hold the catgut in place while it is being tied above the artery. Immediately following the enucleation of the tonsil I usually hold a gauze sponge pressed firmly within the fossa for about a minute to check the first flow of blood before the hemostat is applied.

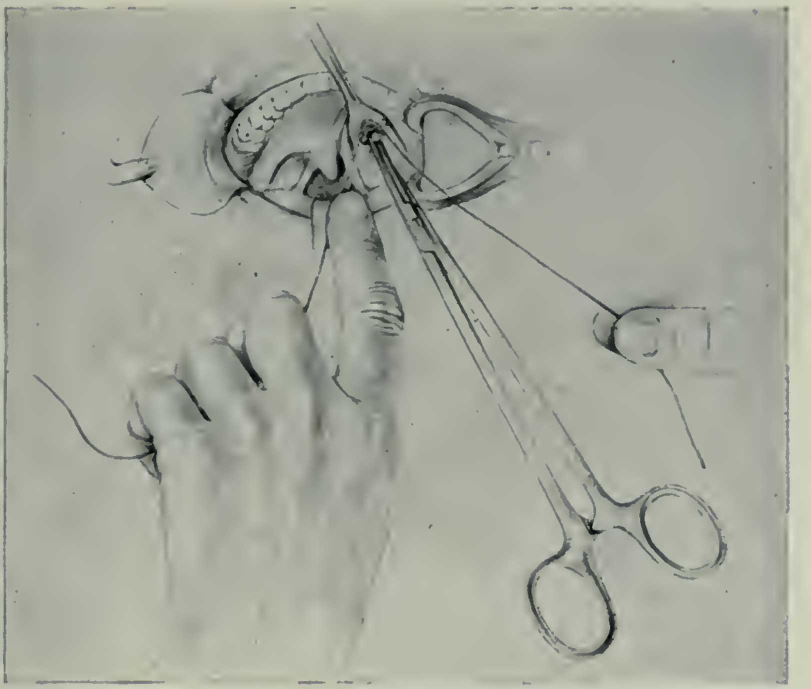

Figure 12. Showing manner of holding the ligature ends for tying. The right hand end of the ligature is held well outside of the mouth, thus giving a clear view of the field of operation, while the other end is held secure by being wound around the little or ring finger of the left hand, leaving the index finger free to press downward upon the knot as it is drawn upon the vessels. Two knots are sufficient for security.

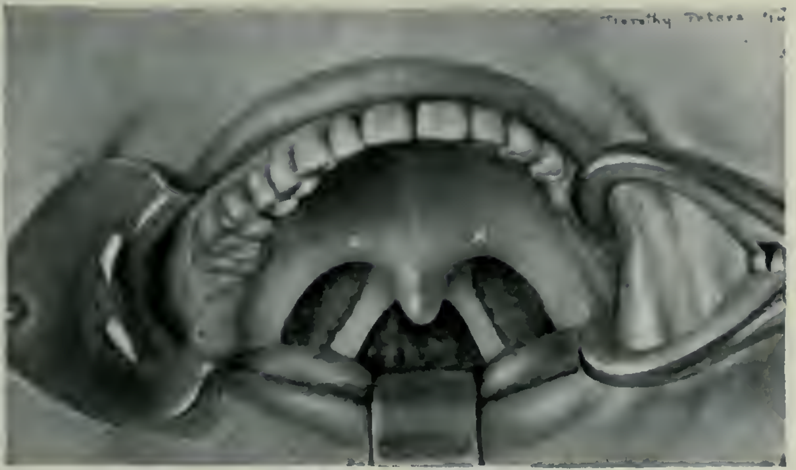

Figure 13. After the process of suture-ligation is completed the two sides of the throat should look like the above view. The cross marks indicate the location of the ligatures within the superior extremities of the fossae, being entirely hidden from view by the anterior pillar after the retractor is removed.

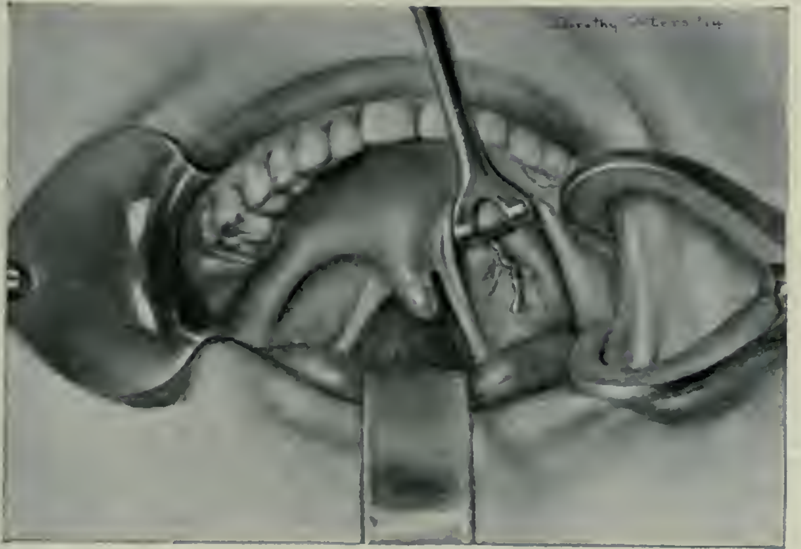

Figure 14, showing the occasional occurrence referred to where the artery was severed at or near its entrance into the tonsil, leaving the remaining portion detached from the wall and dangling loosely from its superior point of entrance into the fossa. This condition has no doubt perplexed many operators from the fact that while it is bleeding and the fossa is filled or covered with blood the artery itself cannot easily be seen, giving the appearance of multiple points of hemorrhage as its position is shifted in attempts to apply astringents or pressure, etc., according to the older methods. By the suture-ligature method, simply retract the pillar and grasp with hemostat in the usual way at its upper entrance into the fossa and introduce suture-ligature as shown in Figure 11.

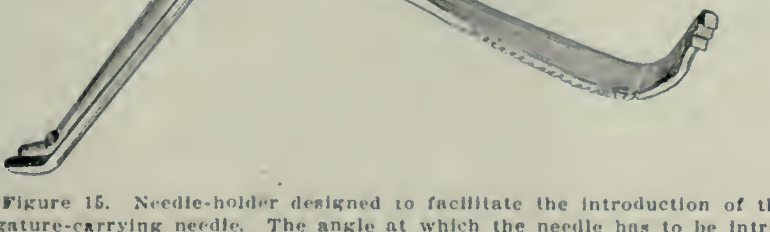

Figure 15. Needle-holder designed to facilitate the introduction of the ligature-carrying needle. The angle at which the needle has to be introduced and drawn through rendered the process very awkward and difficult with the various styles of straight holders.

SOME GATEWAYS OF CRYPTOGENIC INFECTION. THE AVEOLAR PROCESSES.*

DR. WM. H. HASKIN, New York City.

The great importance of the tonsils and adenoids as a source of sepsis has been recognized by all, but there are many other conditions to be found in the mouth that may have an important influence upon far distant points of the body. In 1908, the writer reported a few cases of such oral diseases that are very common, hoping to emphasize the importance of early recognition of these conditions. In looking over the Transactions of the Triological Society of the past fifteen years it appears that no paper on this subject has ever been read before that society on this subject, although such men as Osler, J. B. Murphy, Hunter, Knopf, Rhein, Collins, Ebersole and many others have written about the dangers of oral sepsis and many of the foremost dentists are sending out valuable articles which have been most instructive to the writer.

It is safe to say that the x-ray has done more to demonstrate pathological conditions in the jaws than any other measure, and no professional man should fail to make use of the radiograph picture in order to detect pus cavities, caries, alveolar atrophies, improper fillings in root canals,—and even the ordinary fillings themselves,—pulp-stones, odontomas, unerupted teeth, roots remaining after extraction, bone cysts, and many other obscure conditions. As a matter of fact, there is no excuse for the existence of septic and often suppurating conditions in the mouth, which serve to contaminate all food and drink and from toxins which enter the system directly. The old theory that all bacteria are killed by the acid of the gastric secretion becomes clearly absurd when we realize that this acid is only found during the active period of digestion of solid foods. It requires some time for the stomach to provide enough of this free acid to have any effect on the bacteria which have in the meantime escaped into the smaller intestine with its alkaline secretions. Every mouthful of fluid, even the saliva, is contaminated, and these bacteria are not even subjected to any possible effect of the acid, as its secretion is not stimulated except by solid food.

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*Read before the Eastern Section of the American Laryngological, Rhinological and Otological Society, New York City, January 17, 1914.

Unfortunately, owing to the absence of pain and the fact that the septic secretions are poured into a cavity that is already moist, the majority of patients do not recognize their condition and are greatly surprised when it is explained to them. Statistics show that over 98 per cent of all school-children have caries of the teeth—which means that they cannot masticate properly, and in consequence there is a lack of proper development of the jaws and a constant absorption of almost every known form of bacteria. Many have fistulous tracts in the alveolar processes with glandular swellings in the neck due to direct absorption. On the other hand, the premature extraction of decayed teeth is bound to affect the normal development of the jaws and the face.

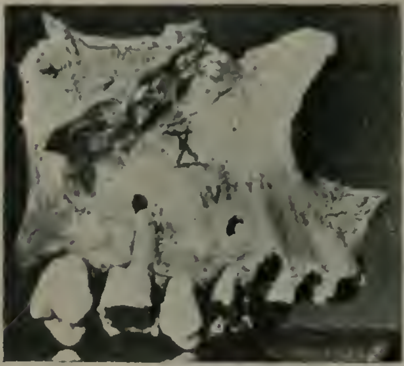

Figure 1 shows destruction of alveolus over second bicuspid and second molar probably caused by apical abscesses.

A great deal is being done by the dentists and by all those interested in the prevention of disease, to stir up the entire population to an intelligent understanding of the necessity of caring for the teeth, and in some communities the results have already been more than gratifying. Immense sums of money are wasted in our school-systems because of the class of so-called "repeaters," or children who fail to progress, and it has been proved beyond doubt that many of these children are not actually stupid but are suffering from malnutrition and septic absorption resulting from diseased teeth and gums, and that when these conditions have been relieved the children progress as rapidly as others. Germany has thoroughly recognized this fact and has made great strides in the hygienic care and instruction of her children, realizing the immense monetary value resulting from their improved health and development.

In January, 1911, Dr. Wm. Hunter, of London, published an article in the *Lancet,* which aroused the dental profession, and it is well worth careful reading by our own profession. He shows that these septic oral conditions play an important part in the etiology of a great number of diseases. Besides the glandular swellings of the neck, and gastric and intestinal disturbances, he claims to have found many systemic septic cases, such as ulcerative endocarditis, pleurisies, osteomyelitis, rheumatic joints, nephritis, pyemias, anemias, skin diseases, and even mental diseases. Osler says: "There is not one single thing more important to the public in the whole range of hygiene than the hygiene of the mouth." Dr. Knopf has written extensively on the influence of diseased teeth upon tuberculosis, and shows the possibility of its being one of the chief causes of infection. He also says that it is almost impossible to cure tuberculosis patients who have no teeth or have bad ones. He says: "To put it briefly, I would say that bad teeth, or the loss of teeth during childhood, its concomitant discomfort, depression of spirit and lack of appetite, produce that physiological poverty which renders the delicate system of the child not only more prone to tuberculosis and to the invasion of the germs of serious acute contagious diseases, etc., but also more susceptible to nervous affections, such as melancholia, hysteria, chorea, and St. Vitus' dance." Rosenow

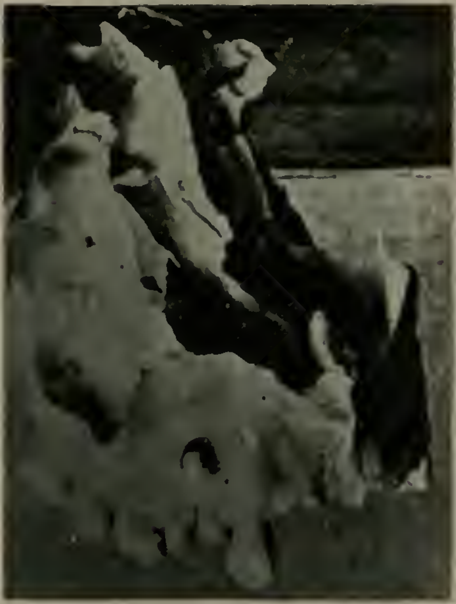

Figure 2 shows typical destruction of bone in apical abscess. Apex of root projecting into cavity.

has proved that gastric ulcer is caused by streptococcic infection, and that the bacteria are frequently derived from blind alveolar abscesses. He has also proved the same source of infection to have caused endocarditis and other diseases.

With this brief review of some of the many diseases which are at least partly caused by oral sepsis, let us consider the most frequent sources of these infections. They are four in number, and are all readily recognized, if sought for, so there should be no excuse for neglecting them: (1) Dental caries; (2) alveolar caries; (3) pyorrhea alveolaris; (4) bad crown and bridge work, bad fillings and impactions.

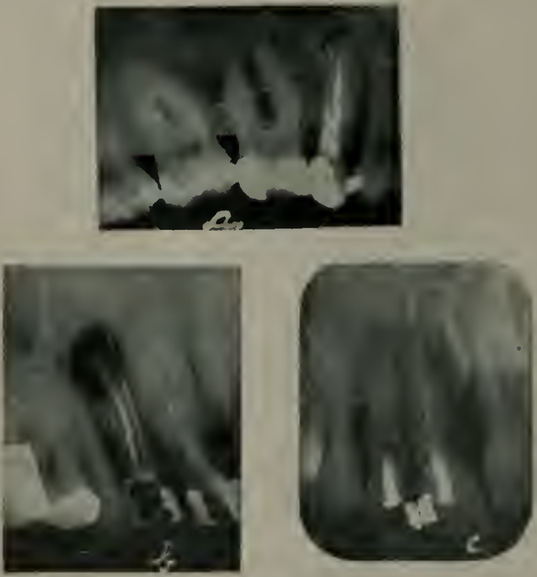

Figure 3: (a) Dark area over second bicuspid shows chronic apical abscess. Note incompleteness of root filling. Also note irregular curves of roots of second molar. (b) Acute apical abscess shown by dark area. Fine wire extends through a false opening in root. (c) Shows loss of alveolus around central and lateral incisors and poor root fillings. Advanced pyorrhea of these teeth.

Dental caries is to be found in practically every human mouth, and comes particularly under the care of the dentist. We could do much to lessen this destruction of the teeth if we would impress upon every patient that every cavity is a septic danger-spot which may lead to serious consequences and great suffering. Alveolar caries is almost invariably caused by disease of the tooth pulp, which becomes infected whenever the dental caries extends deep enough to expose the pulp cavity, or it may be caused by traumatism. It is much more common than is generally supposed and should always be looked for in every patient who has given a history of having had a gum boil or an ulcerated tooth. The fistulous tract may have a most minute opening above the apex of a tooth, or it may be found extending up along the root itself, and will only be revealed by the presence of a drop of pus on pressure. A probe introduced through these minute openings often passes into a really extensive cavity in which roughened carious bone can be felt. Another very suspicious sign is a peculiar bluish color of the alveolar process over any of the teeth, such as is so often found over old carious bone-tracts in other parts of the body. The dental profession has at last been awakened to the ravages of this often painless, insidious disease because of the evidence which can always be obtained by the radiograph, and many patients are being saved much actual suffering and long periods of septic absorption because of the positive diagnosis which can now be made in many doubtful cases. Some claim that blind abscesses often exist with no opening and that these are the most dangerous. It is our duty to have radiographs taken whenever our patients' dentists have failed to

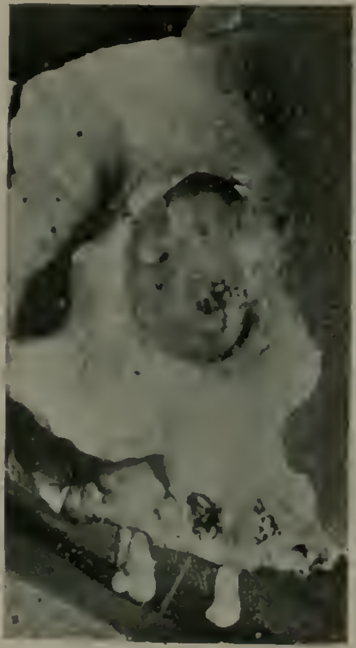

Figure 4 shows carious disintegration of whole alveolar process resulting from pyorrhea.

do so, and we should be able to interpret the picture thus obtained. The chief cause of long-continued alveolar abscess lies in the failure to completely fill the emptied root canal, and, as a rule, this latter condition can be easily recognized in an x-ray picture by any one familiar with the tooth structure. It is almost certain that all good dentists will resort to this means of diagnosis whenever they are in doubt, but there are still many who do not, and when one examines the radiographs carefully it becomes plainly evident why they do not wish to know too much.

Pyorrhea alveolaris—i. e., Rigg's disease—is a suppurative pericementitis and an interstitial alveolitis. As a matter of fact, the bone of the alveolar process is very poorly nourished and readily breaks down as the result of infection, it being only a temporary structure placed on the maxillary bones to hold the teeth. It is not present in the new-born child, and it disappears entirely after extraction of all the teeth. Pyorrhea is always the result of failure to clean the teeth properly. Mucous plaques deposit around the necks of the teeth, and the calcium salts deposit in these plaques, forming tartar. These deposits gradually set up a gingivitis which slowly advances up the roots of the teeth, separating the pericementum or dental ligament from the tooth and allowing the tartar deposits to extend even to the apices. As the disease progresses, the bone of the alveolar process is destroyed (see Figure 4), the gums recede from the necks of the teeth (see Figures 5-9) and they be-

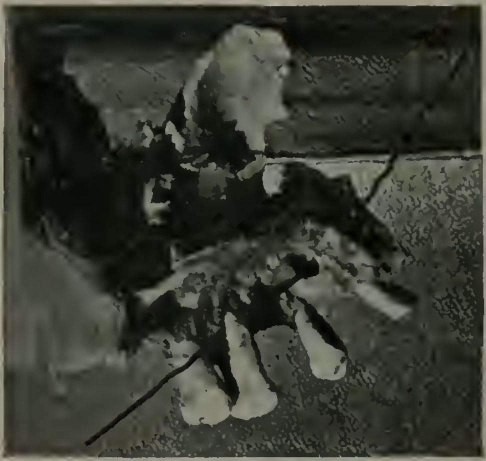

Figure 5 shows wire passing through a perforation of the hard palate caused by an apical abscess. Also shows advanced pyorrhea, the lingual root of the second molar being entirely free from the alveolus.

come loose and eventually fall out. There is a constant flow of septic pus from each diseased socket. The breath is generally very foul but, strange to say, this is not often appreciated by the patient. There is little, if any, pain, but the gums become very tender and swollen, and as they bleed very easily the cleansing which is so urgently needed is more and more neglected. Although it is both an offensive and a dangerous disease, because of its tendency to produce other infections, it is nevertheless found in countless numbers—the rich as well as the poor. It does not matter whether we

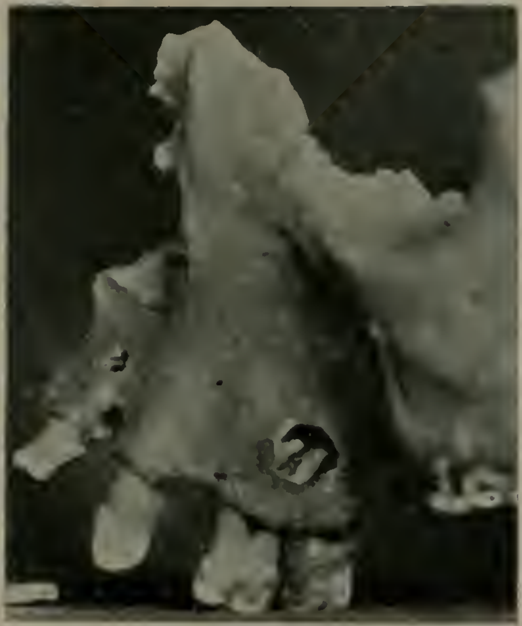

Figure 6 shows carious pocket around roots of molars and also left lateral. Also shows shrinkage of alveolar margin from the teeth and calcareous deposits on the roots of the second molar.

say that is caused by systemic disturbances, improper food, defective mastication, bacteria, by misplaced teeth, or by purely local conditions. Undoubtedly, each plays a part in causing the disease, but it is enough for us to know that the disease can be arrested and all suppuration be stopped, if taken in time.

Vaccine treatment has been advocated by many, and all kinds of diet have had their advocates, but it is well to realize that no case of pyorrhea has ever been actually cured until each and every infected tooth has been scaled and polished, and then kept so. Unfortunately, even in these times and in spite of the brilliant work

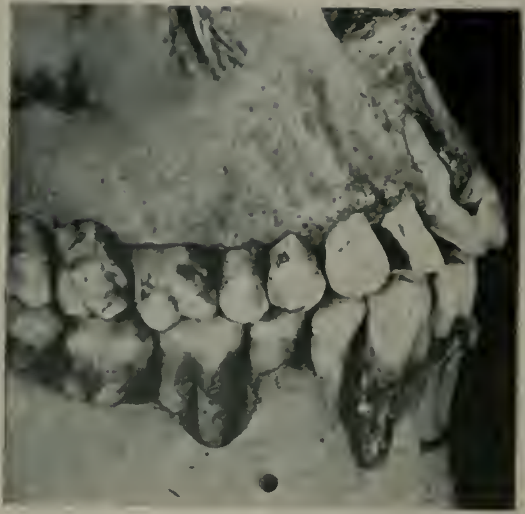

Figure 7. Note destruction of both upper and lower alveoli and the calcareous deposits on the exposed teeth roots.

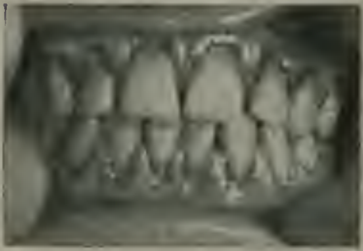

Figure 8: Moderately advanced pyorrhea.

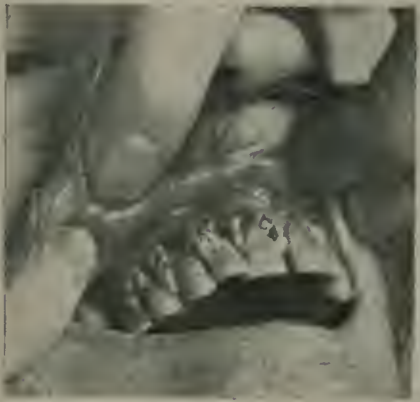

Figure 9: Advanced pyorrhea: Each socket continually discharges pus and countless bacteria.

which is being accomplished by many eminent dentists, there are thousands of dentists who absolutely neglect this dangerous disease, and even tell their patients that it is incurable—either because of ignorance or because of laziness. When diagnosed early it is very easy to control, and intelligent co-operation on the part of the patient as to diet, exercise, and proper cleansing of the teeth should prevent loss of teeth, and also many ill-effects which are bound to follow both the sepsis and the defective mastication resulting from the diseased alveolar processes and the loss of teeth. It is now well known that many obscure diseases have been cured by the removal of diseased tonsils after other measures had failed. The same cures result in thousands of cases after the teeth and jaws have been put in a healthy condition, and the medical profession should recognize this fact and be the first to diagnose such conditions.

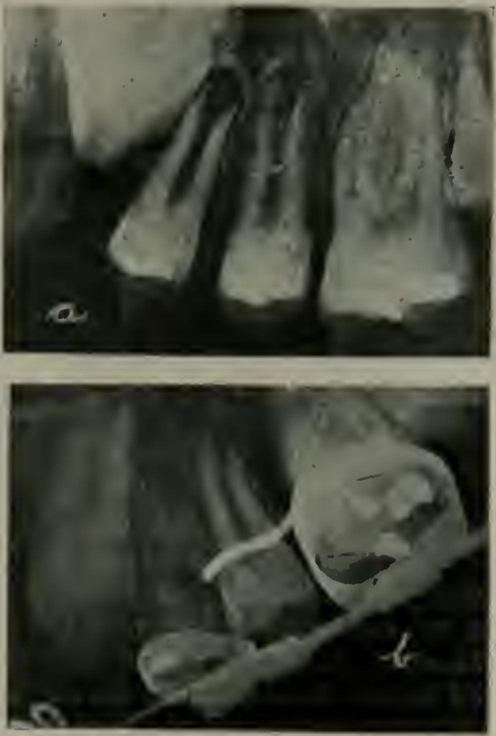

Figure 10 (a) shows impaction of canine. Note the open root canals of two bicuspids which have not completely developed. (b) shows appliance which has opened space between lateral incisor and bicuspid and allowed canine to descend rapidly.

The slides presented show the actual destruction which takes place in the alveolus as a result of apical processes or gum-boils.

and also the shrinkage or atrophy which results from pyorrhea.

It is not the purpose of this paper to go into detail as to causes, effects, or methods of treatment, but the writer earnestly hopes that the importance of these conditions be recognized by the medical men, for by doing our share we can materially help in the great work which is being done by the dental profession and by all those who are working along the lines of preventive medicine.

The grave dangers which arise from bad and unscientific crown and bridge-work are many, and should receive more attention. With much of this work it is absolutely impossible for the patient to cleanse his mouth, and food is bound to accumulate and decompose in the interstices and under the edges of the improperly fitted crowns. Every dentist of repute would be thankful to have the members of our profession join with them in their efforts to stop such work, realizing that it is bound to injure the best interests of their profession, and also because it leads to so much suffering and disease from the septic absorption. We all know the discomforts of food impacted between the teeth but do not stop to think that if the teeth were in proper contact this would not take place; nor do many realize the damage that is done by the presence of this impacted food and its decomposition.

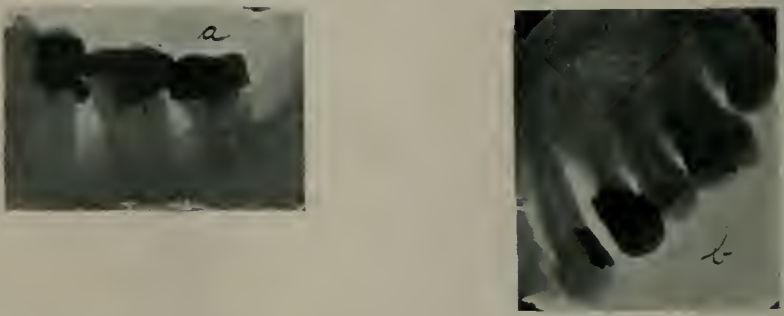

Figure 11. (a) Note very bad fillings. (b) Note badly fitted crown on bicuspid and pyorrhea involving canine.

If old cases are examined carefully the gums will be found badly receded, and the x-ray will show that bone-absorption of the alveolus actually takes place, much the same as occurs in pyorrhea. Impacted teeth that were never suspected, are being recognized very frequently now, and many very distressing nervous diseases are being relieved by remedying these impactions, either by operation or by orthodontic measures. The writer desires to extend thanks to Dr. U. F. Spies, for several of the illustrations which have been copyrighted.

40 East Forty-first Street.

A CASE OF COMPLETE BILATERAL BONY OCCLUSION OF BOTH NASAL CHOANAE.*

DR. ADOLPH O. PFINGST, Louisville, Ky.

On December 4, 1905, Miss M. B., telephone operator, aged 24, was referred to me by Dr. J. Hunn of Junction City, Kentucky. The following history was elicited. As long as she could remember the patient has been unable to breathe through her nose and has been unable to blow her nose, but by pressure against the alae, she could remove viscid fluid from the nasal passages. Her sense of smell, since she has been able to compare it to the perception of others, has not been well developed. Her hearing has apparently always been normal. Up to about two years ago her general health was splendid, but in the last two years she has had, almost daily, a dull headache in the frontal region.

Examination revealed nothing abnormal in her general condition. There was nothing unusual about her facial expression—except the open mouth. Both of the nasal passages contained considerable mucus which she could not expell as she was unable to blow air through the passages. The mucus was removed by suction by means of the saliva ejector of a fountain spittoon. The nasal septum was found slightly deflected towards the right. The mucous membrane over the turbinate bones was very much hypertrophied but was readily retracted with cocain and adrenalin solution. A probe passed through either meatus met with an obstruction far back, which upon examination was found to be due to a hard, firm partition apparently closing the entire passage. The middle of each partition was marked by a slight depression. Post-rhinoscopic examination revealed a septum completely closing the lumina of both choanae. It seemed slightly convex and appeared to have a general direction downward and forward. It was placed just inside of the choanae. The margins of the choanae were well defined and the vomar projected slightly beyond the septae in the median line. To the finger the septi gave the impression of being bony. The palatine arch was about normal. There was no retraction of the drums. Hearing for watch and voice normal.

Recognizing the condition as a complete bony occlusion of both choanae an operation was advised and accepted. As I was not equipped at the time with electric drills I had a hand trephine made with three-eighths inch aperture and with long shank. After cocainizing the bony septi anteriorly and posteriorly with a 10 per cent cocain solution I was able, with the trephine, to make a single opening through the wall of the right side removing a button of bone one-sixteenth inch in thickness. The operation gave the patient considerable pain when the trephine penetrated the posterior surface and the patient refused further work at the time. She was able to blow blood and mucus through the right side of the nose, which to her was a novel sensation. A short strip of gauze was placed in the opening. As the patient took French leave on the next day, she passes from my observation.

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*Read before the Louisville Eye, Ear, Nose and Throat Society, March 12 '914.

Eight years later (November, 1913) while passing through the city to her present home in Ohio, the patient called on me to tell me that she had been able ever since the operation to blow through the operated side of her nose. However, I found that she could get but little air through the nose and that she had a very small aperture near the middle of the bony septum on the right side. The left was unchanged. The mucous membrane of the nose was boggy and swollen.

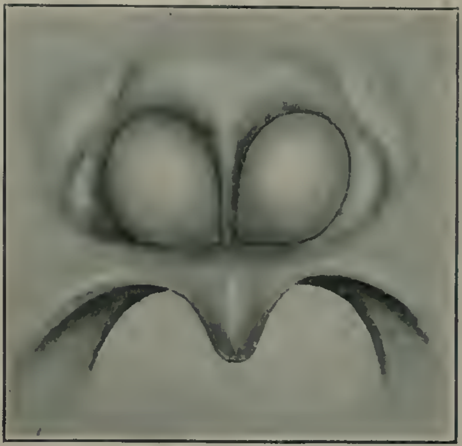

Figure 1. Schematic illustration of the reported case of complete bilateral occlusion of both choanae.

Although cases of atresia of the choanae are uncommon, over a hundred cases have been reported. In 1904 Schmiegelow (*Annals of Otology*) gathered from the entire medical literature sixty-one cases, most of them osseous. The condition has been observed more frequently in females than in males, and when unilateral more on the right than on the left. Atresia of the choanae is mostly congenital.

although cases of acquired (membranous) atresia have been reported. It may be osseous or membranous or part bony and part membranous (Zuckerkandl, Onodi). The great majority are of the bony variety although cases of congenital membranous atresia have been reported. It may occur on only one side or it may, as in our case, be bilateral. Some cases of partial atresia have also been reported.

Schwendt regarded cases like ours in which the posterior edge of the vomar extended beyond the level of the bony partitions as the typical cases and referred to the ones in which the choanal edges and the posterior edge of the vomar and the bony occlusion are on a level as the atypical. Many theories have been advanced as to the pathology of these cases. Schwendt, who seems to have given this subject most study, believes that bony septi spring from the horizontal position of the palate bone. Some look upon the septi as extensions from the pterygoid bones and others from the vomar.

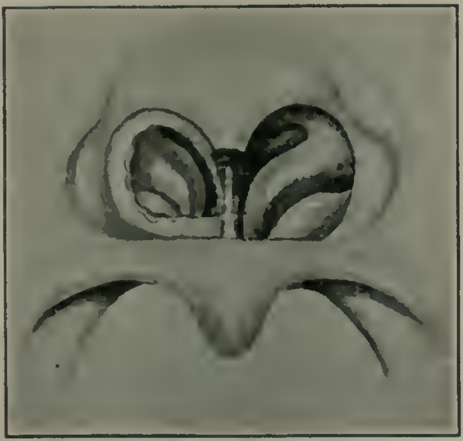

Figure 2. From Katz "Intranasal Surgery," illustrating complete operation in a case of bony occlusion of the right choanae.

Hochstetter has advanced the hypothesis that during embryonic life the epithelial membrane closing the primary nasal chambers is penetrated by the mesoderm.

The symptoms of the atresia of the choanae are very much as described in the reported case. There is inability to breathe through the affected side; anosmia, especially when bilateral, due to inability to sniff air into the nose; and in some the sense of taste is also affected. There is a retention of mucus in the nasal passages, sometimes of an offensive nature, due to putrifactive changes. The mucous membrane in the nose is nearly always hypertrophied—sometimes polyposed. In addition to these symptoms many ot the cases have the facial expression and the high palatine arch characteristic of mouth-breathers. Many of the cases are associated with deafness. Most of the subjects have a peculiar nasal twang to their voice.

The diagnosis of atresia of one or both choanae should be easily made by post-rhinoscopic inspection and digital examination. The thickness of the bone can be determined by placing a light in the naso-pharynx behind the septi. The treatment of these cases is necessarily surgical. As a large opening is essential to prevent reclosure, it is advisable to correct nasal deformities and hypertrophied tissue to give an unobstructed view and an easy passage for the instruments required in operating on the choanal obstruction.

Katz (Handbuch der speciellen Chirurgie) suggests that these cases be thoroughly anesthetized with cocain or alypin on both sides of the deformity, and that three or four holes be drilled with the electric drill and that these be made into one opening by sawing or punching out the bone between the holes, or one hole can be made and most of the partition removed with punch forceps. He advises that the opening extend on the median side as far as the nasal septum and that the free or posterior edge of the vomar also be removed, thereby creating a larger opening and lessening the tendency to reclose. If the opening is too small there is danger of reclosure.

706 Atherton Building.

Successful Treatment of Atrophic Rhinitis and Ozena. L. JACOBS. *N. Y. Med. Jour.*, May 31, 1913.

Dr. Jacobs reports six cases successfully treated with scarlet red and details the technic. He states that scarlet red may be applied to the nasal mucosa without fear of constitutional symptoms; that the best excipient for the applications is mucilage of acacia; and that the treatment is simple and short and of great benefit. ED.

CASE OF PURPURA HEMORRHAGICA.

Dr. E. B. Gleason, Philadelphia.

Man 50 years of age. At the age of 17 he contracted syphilis. He afterward married and had two healthy, robust children, but had taken much mercury. For the last eighteen months has had recurrent nasal hemorrhages which were controlled by packing his nose. The last hemorrhage which occurred on February 21 was severe. The patient was brought to me from Wilkesbarre, Pa., on February 22. The nose was tightly packed to enable him to take the long railroad journey. He had a temperature of 101° ; a red blood count of 3,800,000, hemoglobin 50 per cent, and a moderate leucocytosis. On the body were numerous purpuric blotches which he stated had recurred from the past eighteen months from time to time.

Treatment consisted in the removal of the packing from nose and naso-pharynx and its replacement as required to control hemorrhage for two days. Internally calcium chlorid (5 grains) every three hours was given and on the second day, 20 ccm. of horse serum (Mulford's) was injected.

The horse serum controlled the hemorrhage so completely that after twenty-four hours, packing the nose was unnecessary. After another twenty-four hours, it was possible to cleanse the nose with a syringe without producing hemorrhage.

Wassermann reaction was negative. There was a deviation of the nasal septum to the left and atrophic rhinitis. At the patient's urgent request on February 22, 10 ccm. of horse serum was injected although there had been no hemorrhage since the first injection.

The interesting features of the case are that mercury had possibly produced the purpura, and the prompt control of the hemorrhage by the injection of horse serum.

A careful examination of the nose showed nothing except atrophic rhinitis with deviation of the septum to the left. All edges and spurs on the septum were excoriated as well as the edges of the turbinates. There was a discharge of colorless transparent mucus on the right side, apparently from the posterior ethmoid cells and sphenoid antrum. In fact nothing more than would result from packing the nose to control hemorrhage was discovered by careful inspection.

2033 Chestnut Street.

A CASE OF SUPPLEMENTAL VICARIOUS MENSTRUATION CURED BY SUBMUCOUS RESECTION OF NASAL SEPTUM.

Dr. William T. Patton, New Orleans.

Miss A. D., age 20. Past history: Always a healthy woman; never any serious illness; began to menstruate at 15 years, and began to have hemorrhages from nose at same time each month. About three days before menstrual flow starts, the nose begins to bleed, and continues up to beginning of flow. Menstruates three or four days, no pain, seems perfectly normal. Was referred to me for severe pain and tenderness over left supra-orbital region.

Examination: Fairly large nose, both inferior turbinals swollen and congested. Application of cocain causes considerable shrinkage. Septum badly deviated in "S"-shape deformity, touching anterior end of lower turbinal on right side, pressing the mid-turbinal on left.

Transillumination: Left side dark. Submucous resection advised. Operated on October 4. Packing removed October 5. Uneventful healing, pain and tenderness disappeared next day as soon as pack removed. October 30: Patient feeling fine, no headache, has menstruated past week without any hemorrhage from nose. December 3: Patient reported that she was feeling fine, had passed second menstrual period without inconvenience. I think this is a rather unusual case, although it could hardly be called true vicarious menstruation. January 24: Still continues without any trouble. March 6: Patient has had no trouble and menstruates normally each month.

1109 Maison Blanche Building.

Nose as Source of Infection in Chorea and Acute Rheumatism.

M. Senator. *Deut. med. Wchnschr.*, May 8, 1913.

Senator reports the case of girl of 10 years in whom chorea developed nine days after the removal of a pharyngeal tonsil and points out the relationship between articular rheumatism and chorea on the one hand, and the nasal etiology of the former. He further states that the nose and tonsils are also the entrance portal for the infection in chorea. Ed.

REMOVAL FROM THE ESOPHAGUS BY MEANS OF AN ESOPHAGOSCOPE OF A PLATE OF FALSE TEETH EMBEDDED FOR EIGHTEEN YEARS.*

DR. D. BRADEN KYLE, PHILADELPHIA.

With the aid of the esophagoscope it apparently would not be difficult to locate a foreign body in the esophagus, and in the majority of instances this would be true. But in the case which I wish to report, where the foreign body had been embedded for eighteen years, the local conditions are so entirely different from those produced by a recent foreign body, that the entire procedure is different. The granulation tissue which had organized into fibrous tissue, the embedding of the foreign body in this tissue, together with the curvature of the spine as shown in the x-ray, rendered it exceedingly difficult to locate the foreign body in spite of its size and shape. The age of the patient and his generally poor condition was also an important factor in this particular case, the history of which is as follows:

Early in the morning of October 15, 1895, the patient was suddenly awakened while dreaming—dreaming that he was swallowing egg shells. On becoming thoroughly conscious he realized that he was actually swallowing some hard object, and investigation promptly disclosed the fact that an upper suction plate with four attached front teeth, which he had left in place on retiring, were missing. Inserting his finger into his throat, he was able to touch the plate, but in his effort to grasp it, only succeeded in pushing it further down

A physician was called, made an examination, but could see nothing. As the patient could feel that the plate was lodged in the upper part of the esophagus, the physician wanted to attempt pushing it down into the stomach. To this procedure the patient objected, and then went to a hospital, where another physician examined him, passed bougies and probangs, but with no result whatever, and ended by assuring the patient that he had never swallowed the plate, or if he had, that it was no longer in the esophagus.

During the first three weeks following the disappearance of the plate, the patient experienced slight pain in the lower part of the neck, at the point where he always felt the object had lodged. After that time, there was practically never any painful sensation, but swallowing had always been difficult. When solid food, meat, potatoes, etc., were taken, they had first to be finely ground. For months at a time he took only liquids. At the time of the accident, his age was 55 years and his weight 138 pounds. After about the second year, he began to notice he was losing weight, and continued to do so until the present time, when, at the age of 72, he weighs but 110 pounds.

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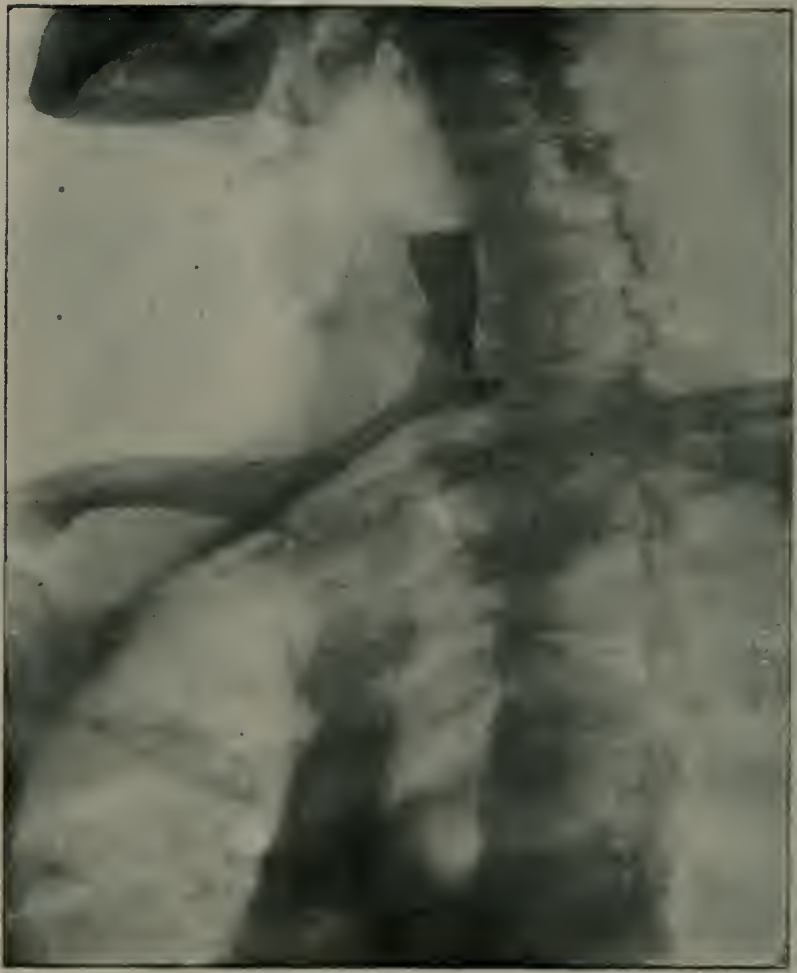
*Read at the Thirty-fifth Annual Meeting of the American Laryngological Association, Washington, D. C., May 7, 1913.



In 1901, six years after the disappearance of the teeth, the first x-ray plate was made in a further attempt to locate them. The plate appeared to show a slight shadow just above the cardiac end of the esophagus. The passing of bougies, however, failed to disclose the presence of a foreign body in that region, and again the search was abandoned.

The patient's general condition continued the same until about the middle of January, 1913, when the difficulty in swallowing beyond a certain point markedly increased. On January 27, 1913. the patient was referred to me by his family physician, Dr. W. H. Hartzell. An x-ray plate was at once made. The negative (lateral view of the neck) distinctly showed the plate, its long axis parallel to the walls of the esophagus, and located immediately behind and extending a little below the cricoid cartilage. The teeth were attached to the lower end of the plate.

The same evening the patient was taken to the operating room and the removal of the teeth attempted. The pharynx and esophagus were anesthetized with 20 per cent solution of cocain. and the patient placed on a table with his head well extended over the end. The extension of the head on the shoulders was very difficult, owing to the rigidity of the entire spinal column. An attempt was made to secure a view of the plate by means of the Kirstein autoscope, but this was found to be too short and the Kahler esophagoscope was used instead. With this instrument a portion of the surface of the plate was brought to view, about 18 centimeters below the anterior margin of the upper jaw, but the upper edge appeared to be covered by fibrous tissue.

Efforts were made through the esophagoscope with various forms of forceps to find and grasp the edge, but without result. The esophagoscope was then removed and an attempt made with an ordinary long laryngeal forceps. I was able to partially displace the thickened tissue over the upper margin of the teeth, so that with the laryngeal forceps a hold was secured, but considerable force failed to dislodge the plate. It was then decided to allow the patient to rest for a time. Very little soreness and practically no hemorrhage followed this manipulation.

On January 30, a second attempt was made, the patient anesthetized as before, but this time sitting on a low stool with head and back supported by an assistant. This position was found to be much easier for both patient and operator. On this occasion, through the Kahler esophagoscope, a portion of the tissue covering the upper edge of the plate was cut away with biting-forceps; thus exposing it to view. Seizing the plate with the same forceps, effort was made to withdraw it, but the forceps slipped off and the plate remained.

After similar repeated efforts, owing to the fatigue of the patient, it became necessary to again cease manipulations for a time.

In the meantime, another instrument, a long, biting-forceps suitable for use through the Kahler esophagoscope, had been secured, and on February 4, a third attempt was made, in all respects similar to the second, except that the new biting-forceps was used for cutting away more of overhanging tissue and grasping the plate. The plate was distinctly loosened from its bed at this time but not sufficiently to be withdrawn before weakness of the patient and slight hemorrhage, which obstructed the view, made it seem advisable to discontinue a third time.

On February 10, the patient was prepared as before, and with the Kahler esophagoscope the plate was promptly located and grasped with the biting-forceps, which held it while steady traction was made. The plate moved slightly—perhaps half or three-quarters of an inch—when the forceps slipped off. The esophagoscope was readjusted, the assistant supporting the head was directed to apply external pressure to the foreign body in a direction backward and upward, the plate was again seized, steady upward traction applied, and esophagoscope, forceps and teeth all steadily withdrawn.

The plate and teeth were found to be in a perfect state of preservation. The plate measured 1¾ inches in length by 1¼ inches in its greatest breadth. Practically no hemorrhage and very little soreness followed the final operation. The second day after the removal of the plate difficulty was experienced in swallowing. This difficulty in swallowing was due not to any swelling but to the fact that there was no muscular action in the esophagus and the portion involved by the foreign body was almost the same as the sacular dilation; in other words, the cause of the lateral distention in the esophagus had not been removed and the physiological contraction did not take place. Liquids taken appeared to be arrested in the pocket which the plate had formed in the anterior wall of the esophagus. It was found, however, that by taking a very small portion of liquid at a time it could be swallowed without great difficulty.

Local anesthesia was employed, first using a 5 per cent solution of cocain in the upper part of the esophagus, and then by means of an atomizer through the esophagoscope a 20 per cent solution was used further down.

The scar tissue formation was not circular, but was limited to the point of impingement of the suction plate at its widest diameter, as is shown in the x-ray. This made two areas of scar tissue, one on each lateral wall. However, at the top of the plate, on account of the friction, granulation-tissue had formed and extended out over the upper margin of the plate. This tissue was almost a quarter of an inch in thickness and extended down over the plate a considerable distance. This scar tissue was removed at one margin of the plate so as to enable me to pass an instrument underneath the plate and in that way make a certain amount of traction and force the plate away from the scar tissue. As shown in the x-ray photograph, the foreign body was on the laryngeal side, the curvative fitting around the larynx.

One of the peculiarities of the case was that the patient had not suffered from any laryngeal symptoms, and it would seem impossible to have a foreign body of such size embedded in the esophagus and against the trachea without producing any respiratory symptoms. In the early history of the foreign body, the patient complained of some soreness in his throat, although he never suffered any severe pain and never any difficulty in breathing. There was a slight alteration in his voice, due more to interference with the muscles of phonation than to the inflammatory action. The esophageal muscles, having been put on tension for so many months and years, had lost their muscular elasticity, and the inability of the patient to swallow after the removal of the foreign body was due more to this than it was due to the amount of scar tissue.

It is now three months since the removal of the foreign body, and the esophageal muscles have increased considerably in their action, and the patient is now able to take semi-solid food.

I think the successful removal of this foreign body was due largely to the fact that I proceeded slowly and made as little trauma as possible in the esophageal structures; and by loosening the foreign body from its fibrous bed, by setting up slightly inflammatory action, and then waiting a few days, I was enabled to remove the plate without much laceration of the structures.

1517 Walnut Street.

DEATH OF AN INFANT CAUSED BY FRAGMENT OF PEANUT IN LEFT LUNG,

DR. E. W. CARPENTER, Greenville, S. C.

Thomas Gist, age 18 months, was referred to me by Dr. W. O. Southard, Jonesville, S. C., December 31, 1913, with the following history: While playing on the floor seven weeks prior to this date, infant was seized with a prolonged and severe choking spell. The mother found some raw peanuts on the floor near the child. A cough developed, intermittent in character, frequently followed by vomiting. In a few days fever and wheezing were noted and a left-sided pneumonia developed. This ran the usual course, but resolution did not set in and for this reason the attending physician referred it to me for further study.

Status presens: Infant looks ill; temperature, 100°; pulse 140; respiration, 40. Frequent, short and feeble cough. Left lung solid, right lung filled with large moist rales. An x-ray picture showed a very dark left lung without a suggestion of a foreign-body shadow.

Without anesthesia of any kind a 6 mm. Jackson bronchoscope was introduced into the trachea to the bifucation. The right main bronchus contained much pus. but the left was completely filled with thick, foul-smelling pus, and the bronchoscope would not enter because of the swollen mucosa. With small pledgets of cotton I was endeavoring to clean out this excretion, when. without warning, a flood of pus welled into the bronchoscope and respiration was immediately suspended. Inversion, artificial respiration and distension of lungs with oxygen proved unavailing; there were a few spasmodic movements of the larynx but never a successful respiration.

It was estimated that at least two ounces of very thick, foul-smelling pus escaped through the mouth and nares while the infant was inverted.

I believed that this infant was drowned by the sudden release of pus, precipitated by dislodging the piece of peanut kernel which had more or less completely block the bronchus and dammed back most of the excretions.

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*Read before the Tri-State Medical Society. Wilmington, N. C., February 18. 1914.

Autopsy: Left pleura completely adherent to lung and chest wall. Lung very hard and dark—brown throughout; on section multiple abscesses presented, ranging from the size of a buck shot to an almond, a piece of peanut kernel, pyramidal in shape, measuring 8 mm. on base line and 5 mm. perpendicularly was found in the left main bronchus half an inch from the orifice.

Apparently all the mediastinal glands were enlarged; one was as large as a hickory nut with a central collection of pus.

I submit this case-history to you because I failed to relieve the condition. Our failures often teach us more valuable lessons than the results we usually designate successes.

The first lesson that this case teaches is the danger in delay. When the presence of a foreign body is suspected in the lungs it is imperatively necessary to investigate, there is only a small element of risk in looking, and no resource is as satisfactory as that with the eye. The second lesson is the intensely irritating quality of the peanut kernel. In a personal communication with Dr. Chevalier Jackson, he states that it is the most irritating of all foreign bodies in the lungs.

Among the thirteen cases of foreign bodies that I have reported, four were vegetable substances. One a peanut hull, another a fragment of corn-bread, the third a grain of corn which caused intense inflammation, and the fourth is included in this report.

The peanut hull caused very little reaction, the corn bread was an early case of only a few hours' duration, and while the infant appeared entirely relieved immediately after the removal of the fragments of bread, I do not know the ultimate history of this case. The other cases were glass or metallic substances and the presence of these caused very little offense to the lungs or esophagus.

Symptoms and Diagnosis of Diphtheria. LEON J. MENVILLE, *New Orleans Med. and Surg. Jour.*, July, 1913.

Menville maintains that the physician should be thoroughly trained in recognizing the Klebs-Loeffler's bacilli, both in stains and in culture, so that it will no longer be necessary for him to require the proofs from another source. SCHEPPEGRELL.

BARANY'S THEORY OF CEREBELLAR LOCALIZATION: DIAGNOSTIC VALUE OF THE POINTING TEST IN CEREBELLAR ABSCESS.*

DR. PHILIP D. KERRISON, New York City.

When the characteristic focal symptoms are all present, there is probably no lesion more easily recognized than a cerebellar abscess. Unfortunately there are many cases of cerebellar abscess in which focal symptoms are totally absent. Any new symptom, or phenomenon, therefore, which in an obscure case may help us to a correct diagnosis is surely worthy of our careful study.

Before we can apply these comparatively new tests to the diagnosis of cerebellar disease it is absolutely essential that we possess a working-knowledge of the normal pointing reactions. By normal pointing reactions I mean the pointing deviations or departures from the normal pointing accuracy which regularly occur in response to vestibular irritation. For the moment, therefore, we must leave cerebellar disease out of our consideration and direct our attention to the deviations from normal pointing accuracy which regularly follow or accompany experimental irritation of the sound vestibular apparatus. These pointing deviations will be found to exhibit an invariable relation to the nystagmus induced by the experiment.

Normal pointing accuracy: Normally the average individual with eyes closed and having located some fixed object by the sense of touch—say with the index finger of either hand—can lower the hand and arm to the vertical or hanging position and then bring the finger again into contact with the object touched, or will miss it only by a fraction of an inch. If instead of lowering the hand, the arm is moved in the horizontal plane so that the hand travels through a one-fourth arc of a circle, it can be brought back, the finger again traversing the horizontal plane, to contact with the object previously located by touch. This represents the normal standard of accuracy.

The pointing test most commonly used is of the accuracy of movement in the vertical plane and is applied as follows: The examiner and the patient stand facing each other, the latter with eyes closed or blind-folded and with the arm to be tested extended straight in front of him. The hand is supinated so that the palmer surface of the finger which is to receive the touch-impression is directed upward. In contact with the palmer surface of the patient's finger, thus extended, the examiner places his own finger, pressing downward. To insure a satisfactory test, Barany has found that it is better that the full palmer surfaces, not merely the tips, of the fingers of examiner and examined should be in contact. The patient is now instructed to lower the hand and arm to the hanging (vertical) position and then slowly elevate his finger to contact with that of the examiner, which is held immovably in the original position. The average normal individual finds no difficulty in doing this, or misses only by a small fraction of an inch.

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*Read in part before the American Laryngological, Rhinological and Otological Society, Eastern Section, January 17, 1914, and in part before the New York Neurological Society.

Normal pointing reactions: We are now in a position to study the character of the deviation from normal pointing accuracy which regularly accompanies irritation of the sound vestibular apparatus.

Method of applying test: If we irrigate with cold water, let us say the right ear, there is developed a well-marked rotary nystagmus to the left, and the individual, attempting to stand, *tends to fall to the right*. Now quickly, i. e., while the nystagmus is still active, test his pointing accuracy in the vertical plane by the method already described. It will be found that, having located by touch the examiner's finger with his own, his hand in being lowered will swerve somewhat from the vertical plane to the right, and again in being elevated it will deviate further to the right. His hand, therefore, in being depressed and elevated describes a V falling to the right of the object he is trying to reach. Stating this reaction in the form of a rule, we may say that *the pointing deviation resulting from vestibular irritation is invariably in the direction opposite to that of the induced nystagmus*. It therefore corresponds with the direction of the falling tendency—i. e., the direction in which, if he attempted to stand, he would demonstrate a tendency to fall.

Disturbed orientation of points of space in cerebellar disease: Like other focal symptoms of cerebellar disease the phenomena we have now to consider may, or may not, be present. When present they may be a determining factor in the diagnosis of an otherwise obscure case. Their absence, however, does not in the least justify a conclusion that the cerebellum is not diseased.

The loss of pointing accuracy characteristic of a cerebellar lesion may be demonstrated in the following way: the patient, being blind-folded, the pointing accuracy of the two hands is separately tested by the method already described. In a case in which the symptoms is present it will be found that the arm corresponding to the cerebeliar lesion will regularly deviate outward, while the opposite hand (i. e., that corresponding to the sound side) will continue to point with normal accuracy. Thus in a lesion of the right cerebellar hemisphere, the right hand deviates outward, i. e., to the right; with a left cerebellar lesion the left arm deviates to the left, the arm corresponding to the sound cerebellar hemisphere maintaining in either case the normal pointing accuracy. This is the first part of the test. We must now corroborate the result thus obtained by testing the reaction to vestibular irritation.

Supposing, for example, that in a case of suspected cerebellar lesion we have tested the pointing accuracy of both arms and found that the right arm shows unmistakable outward deviation (i. e. to the right) while the left arm points accurately—this so far as it goes, would indicate disease of the right cerebellum. We must now test the reaction of the right arm to vestibular irritation. This is done by syringing the left ear (i. e. the ear of opposite side to the supposed lesion) with cold water. This is followed by a rotary nystagmus to the right, during which in a normal individual both hands in pointing would deviate to the left. If now in the presence of an induced nystagmus to the right, the right arm does not deviate as normally to the left, but continues as before to deviate outward, (i. e. to the right) while the left hand shows the normal reaction to the left, we have a clear and positive indication of a lesion involving the right hemisphere of the cerebellum.

In order to illustrate these reactions and also certain later functional changes in cerebellar disease, we may cite a striking example in a case already reported by Barany. This was a somewhat obscure case in which indefinite indications of intra-cranial disorder, with complete absence of all focal symptoms other than loss of pointing accuracy were present. The patient, a boy, exhibited some of the general characteristics of a suppurative lesion within the skull, but no focal or localizing symptoms pointing to cerebrum or cerebellum or indicating in which side of the brain the lesion, if present, should be looked for. The pointing tests demonstrated the following conditions: The left arm maintained its normal pointing accuracy and in response to vestibular irritation showed normal reactions. The right arm, on the other hand, exhibited a constant spontaneous deviation outward, i. e. to the right. When the left ear was irrigated with cold water the usual rotary nystagmus to the right was induced, but the right hand did not show the usual pointing deviation to the left.

On these two functional changes—viz. spontaneous outward deviation of the right arm and its failure to respond as normally to vestibular irritation, a diagnosis of right cerebellar abscess was made. This diagnosis was confirmed by operation during which the abscess was located and evacuated.

While in the nature of the lesion these cases are not very common, the case cited is not unique, others having been reported by Barany, Bruehl and other observers, in which exactly the same phenomena were proved, by subsequent operation, to have had their origin in an abscess of the cerebellum.

Let us note now the influence upon these functional changes of the opening and evacuation of this abscess. Two days after the operation it was found that the pointing accuracy of both arms was normal—or, in other words, the spontaneous outward pointing-deviation of the right arm had entirely disappeared. When, however, the reaction to vestibular irritation was tested it was found that when the left ear was irrigated with cold, the left arm showed the normal deviation to the left, while the right arm continued to point with normal accuracy. In other words, as a result of the cerebellar abscess or more likely of the incision through which it was evacuated, the right arm could no longer be made to deviate to the left in response to vestibular irritation.

This also is not unique, Barany having repeatedly demonstrated, in cases of cerebellar abscess which have recovered following surgical evacuation, the absence of the normal vestibular reactions in the arm corresponding to the lesion. This in some form seems to be a permanent functional change.

Barany's theory of cerebellar localization: Barany believes that there exist in the cerebellar cortex certain definite centers which have to do with the orientation of fixed points of space. Each of these centers, he believes, exerts upon some particular joint, or its controlling muscle groups, a pull or tonus, in a certain definite and constant direction. For each joint there exist separate centers which maintain tonuses in different directions. Thus there are separate centers which exert respectively an inward and an outward tonus upon the muscle groups of the shoulder, and which confer upon the normal individual the ability to move the arm correctly in the vertical plain without the aid of sight. Logically in such a scheme there must be additional centers for each joint, exerting respectively an upward and a downward tonus, which are necessary to correct orientation or movements in the horizontal plane. As in the motor area of the cerebrum there are centers presiding over the voluntary movements of each small muscle group, so with the cerebellum there are separate centers for different joints—e. g. the shoulder, elbow, wrist, the hip, knee, ankle, the neck, etc. These various cerebellar centers, acting in harmony, must play an important rolé in co-ordinating the movements of the various joints.

The result of any lesion—e. g. trauma, tumor or abscess—destroying or functionally suppressing one of these centers is equivalent in effect to a stimulation of the opposing center. Thus, if the center exerting an inward tonus upon the shoulder-movements is destroyed, the arm in trying to execute movements in the vertical plane without the aid of sight will deviate outward. The spontaneous deviations from normal accuracy resulting from cerebellar lesions are therefore to be explained as wholly the result of cerebellar enervation.

Cerebellar centers for wrist and shoulder joints: While this theory of cerebellar function seems fairly established, we have as yet definite information of only a few important centers, the exact location of others awaiting further investigation. Since the cases from which our knowledge has been chiefly drawn are for the most part those of cerebellar abscess of otitic origin, it is clear that the cerebellar surface extending from the sigmoid sinus forward along the posterior aspect of the petrous bone to the internal auditory meatus represents the general area which should first be investigated, and in the cases in which these phenomena have been most clearly demonstrable, the lesion has usually been found in close relation to this area.

Barany places the center exerting inward tonus, or pull, upon the movements of the wrist joint in the middle inferior lobe (slender lobe) near the flocculus. The center exerting a similar tonus upon the shoulder joint he places also in the middle inferior lobe, but behind the wrist center by about 10 or 12 mm. The evidence as to the correct localization of these two centers will be stated presently.

The center exerting a downward tonus upon the shoulder joint, destruction or paralysis of which would cause pointing deviation upward, is placed in the most superior and inner corner of the hemisphere, and includes adjacent surfaces of the superior and inferior semilunar lobes. The center for outward tonus (shoulder joint) suppression of which would cause pointing deviation inward, is located in the outer or lateral margin of the lobus semilunaris superior.

Of these centers the first two (those exerting inward tonus upon wrist and shoulder movements respectively) are by far the most important from the standpoint of practical diagnosis for the reason that they are the centers most commonly involved in otitic cerebellar abscesses.

In cases of cerebellar disease in which spontaneous pointing deviation has been present, Barany has frequently demonstrated similar deviations in various joints—e. g. shoulder, elbow, wrist, hip ankle and even in the movements of the waist—i. e., the rocking or forward and backward movements of the trunk, the pelvis being held stationary. The time at my disposal will not, however, allow me to speak separately of the different joints and the method of testing their accuracy. The careful investigation of the different joints may prove to be of practical diagnostic value in the case of small and slowly developing tumors. I am inclined to believe, however, that in any case of otitic cerebellar abscess in which the arm (shoulder joint) shows no spontaneous deviation, little of practical advantage will be gained from the investigation of other joints.

Evidences of the correct localization of the wrist and shoulder joints (inward tonus): 1. Both of these centers fall within that portion of the cerebellar cortex which would be most subject to pressure by an otitic cerebellar abscess, and cerebellar tumors and abscesses in this situation frequently give rise to characteristic deviation both of arm and wrist. 2. Characteristic deviation following surgical injuries at cortical points named.

Case 1: In a case operated upon in the Vienna General Hospital the cerebellar dura in front of the sigmoid sinus had been freely exposed. During the further course of the operation an instrument in the surgeon's hands slipped, entering the cerebellum through the middle inferior lobe near the flocculus. After recovery from the anesthetic his pointing accuracy was tested. The wrist corresponding to the side of the brain injured deviated strongly outward, the opposite hand and arm pointing accurately.

Case 2: Patient in this case presented certain features characteristic of cerebellar abscess but no focal symptoms. Exploratory operation was decided upon. First one cerebellar hemisphere was explored, but no abscess being found the operation was repeated on the opposite hemisphere in which also no abscess was found On each side an exploratory puncture had been made through the middle inferior lobe at the point located at the center for the shoulder joint (inward tonus). The case therefore furnished a unique opportunity for corroboratory tests. After recovery from the anesthetic the pointing tests were made. Both arms showed very marked characteristic deviation outward.

Effect of freezing: To add to the evidence above cited, Barany determined to try the effect of cold applied locally to one or other of the centers named. From the nature of the tests animal experimentation could not be made use of. It was necessary, therefore, to wait for some suitable case in which, following an operation, a considerable area of cerebellar dura had been left exposed. Several available cases have been found in patients who have recovered from operations leaving a suitable cerebellar surface covered only by a very thin layer of skin. The experiment is carried out by freezing with an ethyl chloride spray the center for the shoulder joint (inward tonus). It has been repeatedly demonstrated that after freezing this center for a period of two and a half minutes strong outward deviation is established. The inference from this experiment would seem to be two-fold: first, it corroborates the correct localization of this center; second, the prolonged freezing, (i. e. 2½ minutes) necessary to a definite response seems to show that the phenomenon is wholly the result of cerebellar enervation, complete temporary paralysis being essential to a well-defined reaction.

Definite proof of the separate existence of two distinct centers for the shoulder and wrist is not so easily established. A lesion causing suppression of one center will almost inevitably disturb both centers. In some cases deviation of the whole arm is pronounced, while deviation of the wrist is not so clearly demonstrable. But we must remember that the normal reactions of the wrist to vestibular irritation are usually less pronounced than of the shoulder. The strongest proof of the separation of these two centers is found in the late functional changes in certain cases recovering after operation, of which the following furnishes an instructive example:

Case 3: The patient, a boy, showed before the operation strong spontaneous outward pointing deviation of right arm and wrist. At operation, a right cerebellar abscess was evacuated through an incision into the cerebellum in front of the sigmoid sinus. Following evacuation of the abscess the spontaneous outward deviation disappeared within a few days, both arm and wrist regaining their normal pointing accuracy. Tests of the normal reactions to vestibular irritation showed, however, the usual reactions in the left arm, but absolute loss of response in the right shoulder and wrist.

Some eight weeks after the operation, re-examination of the patient showed beginning restoration of the normal reaction in the right shoulder, which within a few days became complete, the right arm deviating normally to the left during nystagmus to the right induced by irrigation of the left ear. *The wrist, however, remained absolutely irresponsive to vestibular irritation.* So far as is known this has persisted as a permanent functional change.

For the writer, it is difficult to find any hypothesis which will quite satisfactorily explain all of these phenomena. Barany's theory as to their causation is somewhat as follows: The spontaneous outward pointing deviation which occurs as an occasional focal symptom of cerebellar abscess or tumor is caused by pressure of the abscess or tumor upon the center or centers involved; in the case of the wrist or shoulder, the inward tonus being for the time abolished the hand or arm in pointing is dominated by the still intact center for outward tonus, and therefore deviates outward. When the abscess is evacuated, pressure is relieved and the center regains in part its control of position-sense in the joint involved. This partial restoration of functional activity in the special center involved is probably re-inforced by a balancing or compensatory reduction of activity in the opposing centers for outward tonus. Reasoning by analogy with other instances of the compensatory activity of apparently unrelated organs in assuming the duties of a mechanism disabled or destroyed, it is also possible that the cerebrum may also play some part in restoring the power of correct arm movements in the vertical plane.

It is assumed, however, that the incision passing through the cortical center for inward tonus results in organic changes which permanently isolate this particular center from the influence of vestibular irritation, so that the arm or wrist no longer deviates inward in response to appropriate irritants. In the case cited in which, following evacuation of a cerebellar abscess, the normal reaction was finally restored in the arm (shoulder joint) but continued permanently absent in the wrist, Barany assumes that the incision of the cerebellum permanently destroyed only the wrist center. The early and somewhat prolonged loss of reaction in the shoulder joint is explained as having resulted from a surrounding cortical inflammation which ultimately underwent complete résolution. The permanent loss of normal reaction in the wrist and its restoration in the shoulder joint he interprets as conclusive evidence of the separation of these small cortical areas as distinct centers.

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THE DIAGNOSIS AND TREATMENT OF BRAIN ABSCESS.*

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No other intra-cranial condition offers greater difficulties of diagnosis and of successful treatment than brain abscess. It can simulate many intra-cranial lesions so closely that an operation, when advised, is performed frequently as an explorative procedure; this is particularly true of those abscesses located above the tentorium.

The history naturally plays a most important part in the diagnosis. A definite history of cranial injury, especially of fracture of the base, previous middle-ear disease and septic processes occurring in any part of the body, particularly of the nose and throat, the lungs and of the pelvis, are the usual forerunners of brain abscess. Months may elapse before marked signs of the intracranial lesion appears, but I think a careful inquiry into the histories of such patients will usually elicit symptoms pointing to the formation of the abscess during this interval of apparent latency. I refer to those vague indefinite headaches of short duration, occasional "neuralgic" pains in the head, an unusual drowsiness, at times associated with anorexia and possibly nausea. Frequently these disturbances are so mild and so transitory that the patient does not consult a doctor, and if he does, then the digestive tract is usually considered to be the site of the trouble, constipation being always present.

Metastatic abscesses resulting from infective processes elsewhere in the body are usually multiple, and therefore their symptoms and signs are more marked and overwhelming. It is an interesting observation that they occur most frequently in the region of the left Sylvian fissure, due probably to the more direct blood-current of the left carotid artery. Naturally the treatment of multiple metastatic abscesses of the brain is rarely successful.

It is, however, in those cases of brain abscess of contiguity that an ever increasing percentage of recoveries may be obtained. They are almost always limited to one single abscess, which may slowly enlarge to the size on an orange—its symptoms frequently being only those of pressure; its capsule may become an eighth of an inch in thickness, completely walling it off from the surrounding brain tissue. Naturally, the situation of the abscess is in the neighborhood of the originally infecting focus, whether it is an infected fracture of the vault or one of the base, a purulent rhinitis or sinusitis, or an otitis media. The localization, however, is not so easy and simple as this may seem, and I repeat that all operations for brain abscess should be advised as exploratory procedures, in the hope that the abscess may be located in the neighborhood of the incision.

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The most common site of brain abscess is in the temporo-sphenoidal lobe, particularly its inferior and posterior portion; 60 per cent of brain abscesses are to be found in this lobe. Naturally, the source of infection is usually an otitis media, which is also the forerunner of the next most common brain abscess—that in the cerebellum; in it occur about 25 per cent of the cases, while the remaining 15 per cent are to be found in either frontal lobe, the cortex underlying an infected fracture of the vault and at the base of the skull.

Given the history of a fracture of the skull, otitis media, purulent rhinitis, pharyngitis or sinusitis, and subsequently the onset of rather severe headaches characterized by their periodicity with intervals of complete relief and comfort, spells of nausea and even vomiting, at times associated with drowsiness and even stupor, then an abscess of the brain should be suspected. A slight temperature may or may not be present. Naturally, a lumbar puncture should be made in each case in order to exclude a secondary meningitis, and a Wassermann test, both of the blood and of the cerebrospinal fluid, performed. An ophthalmoscopic examination may or may not show signs of increased intracranial pressure.

Like many tumors of the brain, abscesses produce their symptoms and signs chiefly by their pressure-effects, and not so much by an actual destruction and substitution of brain-tissue. The edema of the surrounding tissues may become very great at times, undoubtedly causing dural tension and the periodicity so characteristic of the headaches, nausea and vomiting, and the stupor. I have had the opportunity to observe a case of large abscess of the right temporo-sphenoidal lobe (confirmed by operation with recovery) and during the intervals of relief and apparent good health, the ophthalmoscopic examination was uniformly negative, whereas during the attacks of severe headache and stupor the increased intracranial pressure registered itself upon the fundus of the eye by a dilation of the retinal veins and an edematous blurring and haziness of the nasal halves of both optic discs; as the headache lessened, so did the edema of the optic discs slowly fade away. The cause of this edema may be due to organisms or toxins escaping periodically through the abscess-wall into the surrounding brain-tissue.

To localize accurately the site of the abscess is a most difficult task. If preceded by an otitis media, then the temporo-sphenoidal lobe should be considered the most probable site of the abscess; if not there, then the contiguous lobe of the cerebellum.

The tempo-sphenoidal lobes and especially the right one are comparatively silent areas of the brain. Taste and smell are here localized, but it has been in my experience very difficult to elicit definite disturbances of these two special senses in unilateral lesions of these lobes. The temporo-sphenoidal "fits" of the uncinate gyrus are fairly constant, especially in cortical lesions of the left uncinate gyrus; they are characterized by dreamy states of unreality, a perversion of taste and smell, and a smacking and sucking of the lips and tongue.

If the abscess is very large and sub-cortical,. then the optic radiations extending into the temporo-sphenoidal lobe may be compressed and an homonymous hemianopsia may result. If in the left lobe, then a true motor aphasia may be produced by compression of the motor speech-area; usually, however, a paraphasia results and various combinations of sensory aphasia due to an obstruction to the sub-cortical connecting nerve-fibers which constitute the links of the complex mechanism of speech; so that the patient may be able to speak spontaneously and correctly and yet be unable to speak by reading or by imitation, to write spontaneously from dictation or by copying, and to understand spoken or written words. Central deafness is rare unless there is a bilateral lesion,—an exceedingly uncommon condition.

Abscess of the cerebellum has been in my experience less difficult to diagnose than those abscesses situated above the tentorium; not only are they more liable to produce the medullary signs of compression, such as a marked lowering of the pulse-rate and irregular respiration, but also a blocking of the iter with the resulting dilatation of the ventricles, and therefore the early signs of increased intra-cranial pressure as shown by an ophthalmoscopic examination of the fundus. As the abscess is usually situated in the anterior lateral part of the lobe nearer the affected ear, the facial nerve and even the trifacial nerve may be compressed so that an ipsolateral weakness and hypesthesia of the face may result. Corneal anesthesia may be present; homolateral weakness of the arm and leg may occur, and the other signs of a cerebellum lesion; nystagmus, usually toward the affected side, is fairly constant. Suboccipital headaches are usually present, but I have found the location of the headache in brain abscess, to be very misleading. The Barany tests are naturally important aids in localizing the abscess in the cerebellum.

Abscess of the frontal lobes, especially of the right frontal lobe, is a most baffling condition for diagnosis. Naturally, a history of purulent rhinitis or sinusitis would tend to point to a lesion there, but frequently no such history is obtained. The right frontal lobe is practically *the* silent area of the brain, and I have removed this lobe entirely within the past six months in a patient having a large glioma of it, and apparently the only changes in his personality and mentality are that he is somewhat slower in adding figures in his work as a bank cashier, and, according to his wife, "he is less affectionate since the operation."

As the abscess enlarges posteriorly, motor impairment of the opposite side of the body will occur, and when downwards, then frequently a beginning homolateral primary optic atrophy of direct pressure upon the nerve contrasts strongly with the choked disc and beginning secondary optic atrophy of the other eye due to the increased intra-cranial pressure. Aphasia in its various forms may be produced by an abscess in the left frontal lobe. Frequently, a coarse homolateral tremor of the hand occurs. The "Witzelsucht" so commonly observed in tumors of the frontal lobes rarely occurs in abscesses of them.

Those abscesses resulting from infected fractures of the vault of the skull are usually to be found directly beneath the line of fracture. So much for a brief consideration of the diagnosis and localization of some abscesses of the brain.

Treatment: The treatment of brain abscess is a surgical procedure. Undoubtedly some abscesses are absorbed by the palliative expectant treatment, or at least the abscesses become so well "walled off" from the surrounding brain-tissue that clinically they may be considered "healed." However, it is a very dangerous method of treatment, and I feel that once the diagnosis and apparent localization of the abscess have been made, then an exploratory operation should always be advised. If, after repeated careful examinations, there are no localizing signs to be ascertained, then I advise a large sub-temporal decompression over that side of the head nearer the originally infecting focus (if it can be ascertained), usually an otitis media. A ventricle puncture needle can now be used at the lowest part of the temporal lobe and in this manner the entire temporo-sphenoidal lobe can be carefully and accurately explored, and especially is this true of its inferior and posterior portions; if no abscess is found, then this decompression will relieve the symptoms until localizing signs may appear. Besides, the vision will not be impaired from the increased intra-cranial pressure. However, unless the abscess is situated beneath the tentorium, a "choked disc" in brain abscess is less frequently observed than in brain tumor.

Unless the abscess is directly beneath the dura so that it can be seen (and this is very uncommon) it is a dangerous and distinctly unsurgical procedure to puncture the dura blindly in the hope that the needle may locate the abscess. Not only may cortical vessels be punctured with the resulting sub-dural and pial hemorrhage, but if the abscess is found and a large dural opening not made, then the danger of not only a meningitis due to infection under tension is very great, but there is the still greater danger of medullary compression. In my opinion, patients frequently die not from the abscess alone, but rather from medullary compression due to the edema resulting from the abscess and the traumatism of punctures incident to the operation. Naturally, an encephalitis with meningitis may occur under the most favorable conditions, but it is much more liable to occur when the dural opening it not sufficiently large to lessen the high tension of the brain. Besides, free drainage is essential. Naturally, it is a very dangerous procedure to open the dura either by puncture or by incision through an infected area such as the mastoid.

I have been unable to find the so-called "stalk" of abscesses in the brain in all but one case, and in that case its length was hardly a centimeter and it was completely cut off from the deeper abscess.

In cerebellar abscess, the overlying half of the occipital bone should always be removed unless the abscess is in the cerebellar angle and so superficial that it can be seen beneath the dura; however, if the dural tension is very high, then both halves of the occipital bone including the posterior half of the foramen magnum should be removed; that is, the treatment of cerebellar abscess is the same as that of cerebellar tumor. Medullary edema and compression are to be feared in cerebellar abscess much more than in cerebellar tumor; besides it is extremely rare for a general meningitis to result if a large opening has been made so that the surrounding brain tissue is not under tension. For drainage, I have found glass tubing to be most satisfactory, especially the double tube, one tube being inside of the other one. In this pump-like manner the pus and purulent debris can be suctioned out, the outer larger tube being left in place.

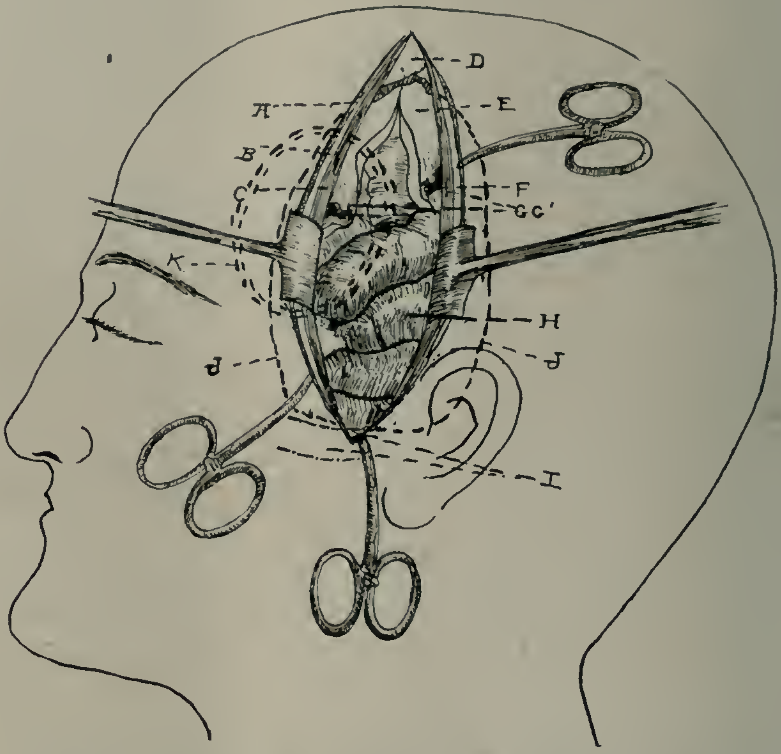
In abscess of either frontal lobe, I believe a sub-temporal decompression should first be made on the side of the suspected abscess, and then a bone-flap opening made over the frontal lobe affected. If the abscess be found, then the bone flap can be replaced and the drainage tubes allowed to protrude through the lowest trephine opening. In this manner the sub-temporal decompression will lessen the intra-cranial tension, and if the abscess is not found, then it may allow the abscess to localize itself more definitely and yet lessen the symptoms and signs of general intra-cranial pressure, especially the headache, nausea and vomiting, slowed pulse and choked disc; that is, while waiting for the abscess to localize itself, we do not allow the patient to become blind or acquire a medullary edema. This is as true for brain abscesses as for brain tumor.

My own series of operated cases is limited to nine. Of these, three died, two from medullary edema resulting from a too small opening of the occiput in cerebellar abscess, and the third one from a meningitis following the drainage of a left frontal abscess through a small opening; no decompression had previously been performed. Of the six cases that recovered, four were in the temporo-sphenoidal lobes, one a cerebellar and one a right frontal abscess—all were treated by the method outlined in this paper.

I should like to report my most recent case to the society as it is interesting from several points of view. My notes of the case as it progressed are as follows:

Thomas: white, 34 years of age. Admitted to the Manhattan Eye, Ear and Throat Hospital on December 1, 1913. Service of Dr. Arthur B. Duel, to whom I am indebted for permission to report this case. F. H. Negative. P. H. Three months before admission, radical operation for left acute mastoiditis; apparently excellent recovery. P. I. Three weeks before admission, patient began having attacks of frontal headaches, associated with nausea and at times with vomiting; these spells lasted one or two days, and then the patient would apparently be in excellent health for five or six days when another attack would occur. Patient had two attacks in the hospital; pulse gradually became lowered to 54, respiration regular, however; the vomiting lasted thirty-six hours. I saw him in consultation on December 8, 1913.

P. E. Well-nourished; very alert mentally. Pulse 64, respiration 20, temperature 99°. Reflexes active, the right possibly greater than left; no Babinski. Abdominal reflexes—present and equal. No paralyses nor areas of anesthesia. No astereognosis. Pupils equal and react normally. Fundi negative, except for slight redness of fundus; no marked dilatation of the veins. (The absence of pressure-signs surprising after what was found at operation.) No definite temporo-sphenoidal "fits;" no perversion of taste and smell. Some sensory aphasia; as he was unable to name things at times—a visual aphasia; no real motor aphasia. No cerebellar signs—no nystagmus, no ataxia, no adiadochocinesia, and no sub-occipital tenderness. Blood and lumbar puncture fluid—negative.



Abscess of left temporal sphenoidal lobe. Its mesial basal portion. Left subtemporal decomposition. A. Skin and superficial fascia. B. Temporal fascia. C. Temporal muscle—its fibers separated longitudinally. D. Bone of parietal crest—origin of temporal muscle. E. Dura incised and its flap retracted. F. Branch of middle meningeal artery divided. GG. Silver clips on artery. H. Cortex. I. Zygoma. J. Extent of decompression 3 in. x 2½ in. K. Location of abscess.

Left sub-temporal decompression and exploration advised for fear another attack might precipitate a medullary edema.

Operation, December 8, 1913, 10 p. m. Left sub-temporal decompression. Usual vertical incision of three inches in length and removal of bone; no complications. Dura quite tense and became extremely tense before incising it.

Dry brain which gradually protruded, though cortex did not rupture. Large dilated cortical veins. Ventricle puncture-needle used to locate abscess—eight to nine times in every direction, but not successful. Finally, needle struck resistant body in the anterior inner portion of left temporo-sphenoidal lobe, and upon incising the cortex and palpation with the finger, a tumor the size of a small orange apparently localized; unable to remove it—too far forwards under shelf of bone. Two rubber tissue drains left in cortical incision. Usual closure. P. O. Temperature rose to 105° upon the fifth day, associated with intense headaches; decompression-opening tense during attacks of headaches and the retinal veins were also rather full. Lumbar puncture revealed pus in the cerebro-spinal fluid, but no bacteria found. (Dr. Callison's report.) Neck rigid; gradually temperature subsided and in four days the fluid was negative.

Owing to the history of syphilis now obtained from the patient and the feeling of the tumor-mass at the operation, four full doses of neo-salvarsan given at intervals of five days. Apparently some improvement; every four days, however, intense headaches and bulging of the decompression-opening would occur and last twenty-four to thirty-six hours; then normal in the intervals with a lax decompression-opening. Fundi were negative in the intervals of comfort, whereas the veins dilated slightly during the attacks and a slight haziness and blurring of the nasal halves of the discs would appear; slight weakness of right side of face now observed and left pupil at times larger than right. No perversion of taste nor of smell. Headaches in the left frontal and left temporal region. (Will remove tumor-mass of the left sphenoidal lobe in a few days—after neo-salvarsan has had a chance to improve patient's condition.)

January 6, 1914: At 7 p. m., patient suddenly had a severe attack of headache, nausea and vomiting, and gradually became stuporous and then unconscious. Several general clonic convusions occurred with loss of consciousness and a smacking of the lips—"uncinate fits." Decompression very tense—whereas it was always retracted and lax during the intervals of comfort. At 9:30 p. m. seen by Dr. Kerrison and myself. Patient stuporous. Left pupil larger than right. Definite weakness of right side of face and right arm; also possibly right leg. Reflexes very much exaggerated, right greater than left. No Babinski. No nystagmus nor any cerebellar signs. General convulsive seizure again occurred, (clonic alone, no tonic) and a loss of consciousness this time.

Very drowsy; pulse 48; respiration irregular; patient very septic-looking. Immediate operation advised over site of supposed tumor. January 6, 11 p. m.: Left frontal exploration. Vertical incision of two inches over left fronto-parietal area, and bone one and one-half inches in diameter removed. Dura very tense; upon incising it, swollen edematous brain tended to protrude. Upon directing the ventricle puncture-needle inwards and slightly downwards in search of the lateral ventricle, a firm resistant mass obstructed the passage of the needle, until a high degree of force enabled the needle to puncture the dense, thick capsule—allowing 3½ oz. of greenish-yellow pus to escape under high tension. (Pathological report by Dr. Callison was streptococci.) This abscess apparently occupied the inner anterior part of the left temporo-sphenoidal lobe and must have been the size of an orange. Double glass tubes inserted into the abscess cavity and the usual closure made. The patient became conscious two hours after operation. No convulsions nor marked lowering of the pulse have occurred since the operation. Daily dressings have allowed one-half oz. of pus to escape each time. The decompression opening is not tense but bulges moderately. The fundi are negative. This patient is still in the hospital—very septic from the absorption of the toxins, and it is nip and tuck whether he recovers. It is significant, however, that he has not a meningitis (the cerebrospinal fluid is negative) and he has no signs of medullary compression.

This case is interesting chiefly from the fact that following a radical operation for left mastoiditis an abscess should develop so far forwards and mesially; that it would have been overlooked (in spite of its large size) unless a decompression-opening had been made; that such a large abscess could remain latent apparently—there being few localizing signs of its presence until the second operation; and because of the unique opportunity (I can find no similar case in the literature) to observe the results of a periodic edema of the brain due to the presence of the abscess producing signs of intra-cranial pressure in headaches, vomiting and lowered pulse-rate and as shown by an ophthalmoscopic examination and confirmed by the tense decompression-opening, whereas, during the intervals of comfort, the fundi were negative and the decompression-opening was lax. It is interesting to note also that after the first operation, the patient developed a meningitis—pus being in the lumbar puncture fluid, but no bacteria were found; an extreme form of meningeal irritation. At this time, I thought I had either infected him at the operation or I had punctured the wall of an abscess, whereas, at the operation, when no pus flowed through the needle I considered it a gummatous tumor from its consistency and apparently confirmed by a weakly positive Wassermann test. This case also illustrates how difficult it is for an abscess situated above the tentorium to produce signs of intra-cranial pressure as registered upon the fundi of the eye; whereas if situated subtentorially, i. e. cerebellar abscess, then the ventricles easily become blocked and the opththalmoscope would early reveal the pressure-changes of the optic discs in the fundi of the eye.

In conclusion, I wish to emphasize the following points:

A. The diagnosis of brain abscess:—1. The importance of the history, particularly of a previous otitis media. 2. The periodicity of its symptoms and signs—there being intervals of complete relief and comfort. 3. The frequent absence of signs of intra-cranial pressure in the fundus of the eye, when the abscess is situated above the tentorium. 4. The great frequency of abscess in either temporo-sphenoidal lobe, and some of the diagnostic aids for a definite localization of the abscess in them, as well as in the frontal and cerebellar lobes.

B. The treatment of brain abscess:—1. Operation for brain abscess is usually an exploratory procedure. 2. The dangerous and unsurgical procedure of puncturing the dura "blindly" with a needle in search of the abscess. 3. The danger of not only a meningitis, but also of medullary edema is very great in trying to locate the abscess with the needle through a *small* opening and especially through an infected area, such as the mastoid. 4. The advisability of a sub-temporal decompression in abscesses situated above the tentorium—both to lessen the intra-cranial pressure and thereby to avoid impairment of vision and the danger of medullary edema while waiting for the abscess to localize itself and also to lessen the danger of a meningitis. In abscess of the temporo-sphenoidal lobe. the decompression allows a careful exploration of the entire lobe in search of the abscess. 5. In abscess of the cerebellum, the great danger of medullary edema should be avoided by a large opening: if the tension is very high, then the removal of the posterior half of the foramen magnum is essential.

20 West Fiftieth Street.

THE EFFECT UPON THE ENDOLYMPH OF THE STATIC LABYRINTH OF LOCAL AUTOGENOUS TEMPERATURE VARIATIONS.*

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It is common knowledge that the temperature of the animal body increases for certain distances, from the exterior toward the central part. Constantly losing heat from its surface like any other substance of higher temperature than the air, and by means of the cutaneous circulation and evaporation of perspiration, its surface being more exposed to this cooling influence than are the internal organs, the superficial parts maintain a temperature slightly below that of the body in general. The cooling influence of the atmosphere is moderated by the warmer blood from within, supplying fresh quantities of heat, and thus compensating for its external loss. There is not only a difference between the surface and the interior of the body, but the internal temperatures also vary within narrow limits under certain physiological and pathological conditions. There are normally diurnal, muscular activity, digestion or abstinence, glandular, and nervous activity variations of temperature.

The body, as a whole, presents a general standard temperature, *but its heat is produced in each and every separate organ and tissue by local acts of metabolism,* and it follows that *each organ has a special temperature of its own,* which temperature varies according to its activity or repose. Next to the muscles, the glandular organs, when in active secretion, produce the greatest amount of heat. The blood in the hepatic vein is warmer than that of any other part of the body, and in the kidneys, the sub-maxilliary, and other glands, there is a rise of temperature during their activity. An increased amount of blood circulating through the superficial parts will cause a rise of temperature at the expense of the blood coming from the interior, and this rise must, of course, be a passive one. No more heat is produced than usual, and the cooling effect of the air is unchanged, but, owing to the increased supply of blood, the cooling effect is less perceptible in the parts subjected to experiment on account of the great quantity of heat brought to this point in a given time. In glandular organs, on the other hand, the rise of temperature during functional activity is an active one, taking place in the substance of the gland itself, and the blood passing through such organs becomes warmer instead of cooler, on account of the heat received from changes taking place in the glandular tissues.

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It is universally admitted that in passing through the general capillary circulation, the blood is slightly lowered in its temperature. This may be but a fraction of a degree, and probably is dependent upon external conditions and the evaporation from the surface of the body. On the other hand, animal heat is generated in greatest part in the general capillary system from metabolic actions, and the heat here acquired is but slightly diminished before the blood enters the circulation, because of the rapidity of the blood currents. If not subject to refrigerating influences, the blood is warmer in the veins than in the arteries. Breschet and Becquerel, by thermo-electric apparatus, found that the cellular tissues were from 2.5° to 3.3° cooler than muscle and this can be understood if we consider production of heat in general, and more especially in highly organized tissue.

The nervous system plays a most important role in the regulation of animal temperature by modifying the circulation and the metabolism in different parts. The classical experiment of dividing the sympathetic nerve in the neck, thereby dilating the vessels of the ear and causing congestion, by paralyzing the nerve-supply, forcibly illustrates the power of nervous influence. With such a localized increase in the supply of blood, the nutrition is exaggerated and modified, and the temperature of the part may be increased from 5° to 11° F. above normal. Through the sympathetic nervous system by direct or reflex action numerous curious local temperature variations can be explained. In the human subject, local modifications in temperature are frequently observed. The phenomena of blushing and of pallor from mental emotions are familiar examples of local variations in the circulation, independent of the heart's action, and due to action of the vaso-motor nerve through the sympathetic or the cerebro-spinal nervous systems.

The brain must be a source of heat, as its temperature is higher than that of the arterial blood which comes to it, but compared with either the liver or the muscles, it is insignificant as a source of heat to the body. Insignificant also, in this respect, is the heat evolved from bone, cartilage and connective tissue.

The skin is the great regulator of the body temperature. By conduction, radiation and evaporation, the blood loses most of its heat here, and any dilation of the cutaneous vascular areas will lead to a greater flow of blood through the integument, and this, by increasing the loss of heat, will tend to cool the body; and conversely, constrictions in cutaneous parts of dilations in the splanchnic vascular areas will tend to heat the body by the diminished flow through the skin and the increased flow through the viscera. The secretion of sweat directly regulates temperature by increasing or diminishing the loss of heat, by a greater or a less evaporation.

During exaggerated mental activity and emotional disturbances, Lombard observed that the temperature of the forehead may rise nearly one degree F., and that it was higher on the left side of the head. The tissue, serous and lymph fluids produce little heat, because of their feeble metabolism, and their temperatures are, therefore, the same as their surroundings. Epidermal, horny and bony tissues conduct heat from adjacent structures but they do not appreciably produce heat. The differences in temperature between peripheral and internal parts is indirectly proportionate to the velocity of the circulation.

The human body, being composed of many different substances, unequal amounts of heat will be required to raise these substances to the same temperature. In other words, if the same amount of heat is transferred to various tissues, they will, in a given time, be raised to different temperatures. It follows also that bodies of different temperatures may contain equal amounts of heat.

At a given temperature, the quantity of heat required to raise one gram of a substance one degree C is called its specific heat, the specific heat of water being taken as 1. That property of bodies, in virtue of which they must absorb a certain amount of heat in order to obtain a certain temperature, is called "heat capacity." The specific heat of human arterial blood is 1.031; of venus blood, 0.892; of spongy bone, 0.71; of compact bone, 0.3. The specific heat of the human body taken as a whole is about that of an equal volume of water. The striking fact which we observe in the above data is, that hard bone may be heated to a given temperature more than three times as readily as the body tissues in general, and more than twice as readily as spongy bone.

The conductivity for heat of animal tissue is also of special interest in connection with the observations we are about to report, but investigations upon this subject are few, and not altogether satisfactory. Griess found that fibrous tissues conduct heat with greater facility in the direction of their fibers than at right angles to these, and Landois made similar observations. In the order of their efficiency as conductors of heat, the tissues may be arranged as follows: compact bone, spongy bone, blood-clot, spleen, liver, cartilage, tendon, muscles, elastic tissue, nail and hair, bloodless skin, gastric, mucous membrane, washed fibrin.

It follows that the compact bone containing the membranous labyrinth is more quickly heated and conducts heat better than the porous bone surrounding it. Tissue containing blood in its vessels conducts much better than bloodless tissue, hence, from a superficial congested area, much heat is given off. Conversely, from areas containing a scanty blood-supply, less heat is given off.

Through the central nervous system dilatations or constrictions of the vessels in various vascular areas may occur, and the great value of the vaso-motor control lies, not in its ability to maintain a general arterial tone, but in its power to modify according to general or local needs the condition of this or that vascular area. Changes in vascular tone of a given area may be altered positively or negatively and quite independently of what is happening in other areas, by: "1, stimuli applied to the spot itself and acting directly on the local mechanism or indirectly by reflex action through the central nervous system; 2, by stimuli applied to some other sensitive area, and acting by reflex action through the central nervous system; 3, by stimuli (chemical blood stimuli acting directly on the central nervous system."*

As a consequence of local dilatation, there is a tendency to the emptying of other areas, and, at the same time, because of the local diminution of peripheral resistance, a lowering of the general arterial pressure occurs, that is if the total quantity of blood issuing from the heart remains the same.

On the other hand, the effects of local vascular constrictions are the reverse of those of dilations. Less blood now passes through the capillaries in a given time, less interchange takes place between the blood and the tissues, each unit-volume of blood is more deeply affected in its passage, and the blood-pressure, at least in the corresponding arteries, is increased.

The capillaries, possessing no muscular element in their makeup, must submit passively to expansion when a large supply of blood is forced through them, and must shrink by virtue of their elasticity when the supply of blood is lessened or withdrawn. Capillaries maintain the vital equilibrium existing between the blood in the vessels and the extra-vascular tissue, and a normal interchange between these is necessary for the normal life of tissue. This equilibrium is overthrown during inflammations. It may be but a slight dilatation of the arteries and capillaries occurs, the veins becoming somewhat enlarged. This stage may pass away, or, due to an increased crowding of corpuscles in capillaries and veins, the blood-stream may become slower and slower until accelerated flow gives place to a stasis. There may also occur conditions the reverse of inflammation, in which resistance of the passage of the blood through the capillary areas may be lowered and the circulation in the area quickened. This is seen especially in any tissue with a temporary interruption of the blood-stream and is due to diminished peripheral resistance.

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*M. Foster, Chapter 4, p. 225.

From the foregoing we see how complicated are the mutual relations and co-ordinations of the vascular mechanisms, and though we have but briefly summarized these relations, two facts important to the subject under discussion stand out prominently: 1, the temperature of different tissues or organs may vary, not only between themselves, but also relatively within themselves, from time to time, due to local vascular changes; 2, the temperature of the body as a whole, and of separate tissues and organs is under the control of the central nervous system through the vaso-motor nerves. It is capable of quick changes as between adjacent or distant regions, and as between the two sides of the body in similar organs.

As I stated in the beginning, all this is commonly known, but a true conception of its import is necessary to the understanding of the subject under discussion.

During the congestions accompanying inflammatory processes, the rise of temperature in the part is held to be never above the temperature of the blood in the internal organs. It may, however, be many degrees above that of the parts surrounding it. The rise of temperature one-fourth of an inch below the surface of the body is but a fraction of a degree higher than normal during the application of externally applied heat to 110° or 115° F.

From irrigations in the external auditory canal with water at a temperature of 110° F., the amount of heat reaching the external labyrinthine wall must therefore be small in normal ears, because the drum membrane and external tympanic wall are approximately one-quarter of an inch distant from the internal tympanic wall, behind which lies the static labyrinth, but, nevertheless, this amount of heat is sufficient to influence the endolymph flow, and, as a rule, give rise to nystagmus. It requires a greater degree of cold to depress the temperature of vascular areas than of heat to elevate their temperature, and cold irrigations must, therefore, usually be at least 20° or 30° F. below body temperature, to obtain objective evidences of endolymph movement, and yet I have seen cases of old epidermatized radicals who experienced distinct labyrinthine vertigo while bathing in ordinary cool river or sea water, and in one case, even cool drafts of air could produce dizziness. Similar cases have been reported by several observers.

I have been able, in one case of chronic suppurative otitis media with complete loss of drum membrane and ossicles, to cause a horizontal nystagmus accompanied by vertigo, within ten or fifteen seconds from the time of beginning irrigations of the external auditory canal. By allowing the fluid to flow but a few seconds at intervals of one-half to one minute, the nystagmus would continue practically only during the flow of the irrigating fluid. At the beginning, the irrigating fluid was 110° F., and during each stoppage of the flow its temperature was noted. After reaching 103° F., the nystagmus failed to manifest itself for the greater part of a minute, although the irrigation was now made continuous. Then. to my surprise, nystagmus appeared, but now to the opposite side. The patient's head was immediately thrown forward to reverse the position of the horizontal canal, and the nystagmus again reversed its direction, to resume a direction away from the irrigated ear on placing the head in the original erect position, which I should state was at an inclination of about 30° backwards from the lateral vertical plane. A thermometer being immediately placed in the external auditory canal, registered 96° F. The nystagmus from now on could be elicited after a few seconds' application of the irrigation, and with increasing facility as the irrigating fluid cooled. I appreciate that this is most extraordinary, but I am positive that the phenomena occurred as stated. They were observed also by a nurse and a physician who were assisting me in the experiment. The difference of temperature between the water in the reservoir of the fountain syrine and that issuing from the ear during the minute or two which elapsed between the disappearance of the nystagmus toward the side of irrigation and its appearance directed to the opposite side of the head, was, as stated, approximately 6° F. As we can deduct at least 2° or 3° F. for the loss of heat during the descent through the fountain tube, and as we can allow at least 1° for the temperature lost in the auditory canal, there will remain a change of about 4° F. between the moment when nystagmic response to the irrigation ceased, to the moment when it reappeared. In other words, while the water in actual contact with the inner tympanic wall was cooling from 101° to 97° F., above and below these temperature limits there occurred a response toward or away from the irrigated ear. (Toward near 101° F., and away from near 97° F.)

A careful otoscopic examination of this patient showed that the entire visible external labyrinth wall was covered by hard, thin, scar-tissue with no congestions or granulations showing. On attempting to produce hyperemia by suction with a magnifying pneumatic speculum, little, if any change in the vascularity of the labyrinth wall could be detected. Neither strong suction nor strong compression gave rise to vertigo or nystagmus. The patient, however, has, from time to time, been annoyed by attacks of vertigo. She had not taken particular notice of the direction in which she tended to stagger during these attacks, but thought that it was toward the diseased ear.

I report these observations to emphasize the fact that, under certain conditions, an exceedingly small variation in temperature near the labyrinth is capable not only of producing vertigo, but also of causing nystagmus. I have had, under my care, several cases of vertigo which were accompanied by abnormal vascular conditions in the middle ear, and in several instances the vertiginous attacks ceased after treatment directed entirely to these conditions.

According to the accepted theories of labyrinthine vertigo, it is impossible to conceive of a chronic, unchanging, or slowly changing temperature near the labyrinth as the cause of vertigo or nystagmus, as such conditions would be rendered unproductive of symptoms through readjusting co-ordinations in the higher vestibular nerve centers. Even the effect of sudden variations in the local vascular areas about the static labyrinth will be quickly annulled by these higher centers and by the speedy equalization of the temperature throughout the internal ear. (Thus we may account for the fact that functional vertiginous attacks are intermittent and separately of short duration.) If the temperature variations should occur at the same time with equal intensity and over identical corresponding areas in the static labyrinths on both sides of the head, there should be no sign of vestibular stimulation because of the balancing action of these impulses from both sides of the head. On the other hand, if these variations occur unequally or unilaterally, it would be strange indeed if they did not produce vertigo through the same mechanism as does artificially applied heat or cold, namely, by causing a movement in the endolymph, by changing the specific gravity for a time, in a limited portion of its mass, thereby causing the portion affected to flow upwards if warmed and downwards if cooled. That an unequal flow of the endolymph, as between the two static labyrinths, is the cause of labyrinthine vertigo, there seems to be no doubt, and that this remains true, whether the flow occurs wholly in one labyrinth or in both, so long as there is a sufficient difference between the impulses aroused from the two sides of the head. This statement may be easily verified by the simultaneous equal or unequal irrigation of both ears and by various methods of rotating the body.

It is extremely difficult by the aid of thermometers or thermo-electric needles to obtain accurate information regarding the temperature of the different tissues of the body, and especially of the more superficial structures, and I appreciate the fact that observations of such temperatures must be tentatively accepted. Nevertheless, as it has an important bearing on the subject, I must produce, besides the facts before mentioned, any that I have been able to elicit along these lines.

Last year I observed a case of mastoiditis on which I had not only done a radical operation, but upon which, owing to a suspicion of brain abscess, I had removed the inner table of the skull, adjacent and posterior to the semi-circular canals, and had elevated the dura on the posterior surface of the petrous bone down to the internal auditory meatus. At the time of the first dressing after the operation, temperature observations were obtained, and to be sure that there was no defect in the thermometers these were compared before and subsequent to their application, and by again sterilizing them and immediately placing them in positions different from those occasioned during their first insertion. The thermometers used were one-half minute, certified instruments. They remained in position for three minutes. The following results were obtained: Rectal temperature, 100.3° F.; mouth temperature, 100.° F.; external auditory canal temperature, 99.° F.; middle-ear temperature, (over outer side of labyrinth) 101.5° F.; sub-dural temperature (over inner side of labyrinth) 101.1° F.

The dura in this case appeared normal. The inner wall of the middle ear, aditus, and antrum, was congested and covered with granulations. The thermometers placed to the outer and inner side of the static labyrinth were inserted deep enough to exclude any cooling effect from the external air, and I believe registered as far as such thermometers could do, the actual temperature of the tissues surrounding their bulbs. A difference of nearly .5° F. is more than one would expect to obtain in this locality, and if I had not used the utmost care, I should doubt the temperature indicated. A temperature of .5° F. would be quite sufficient to cause vertigo and even nystagmus without any lesion within the labyrinth, but if, as in this case, it had obtained for a considerable length of time, we should not expect to get vertigo or nystagmus because of the correcting and co-ordinating control of the higher centers, and in this little child of 7 years, no history of labyrinth disturbance could be elicited. I record the observations as proof of the occurrence of temperature variations about the static labyrinth.

It is possible to cite many more facts which would lend themselves to a further substantiation of my conclusions as to the production of vertigo through stimulation of the vestibular nerves by autogenously produced caloric reactions upon the endolymph, but that this paper may not, by its length and multitudinous statements, confuse the mind I purposely omit data concerning the effect of heat upon the brain, nerves, muscles and cilia, and upon the etiology of temperature-changes in various pathological states. I believe a sufficient number of facts regarding temperature phenomena have been stated to prove my point, and, conversely, to show that it would be most extraordinary if autogenous variations in temperature about the static labyrinth did not effect the endolymph and in like manner to artificially produced caloric reactions. These conclusions have an obvious bearing upon many problems concerning vertigo and allied phenomena.

616 Madison Avenue.

Best Method of Removing the Larynx. R. Botey. *Arch, ital, di Laringol.* July 15. 1913, p. 111.

Botey reviews the various methods of laryngectomy, those of Perier, Le Bec, Sebileau, Durant, and Gluck, and states that that of Gluck is the best as shown by a record of sixty-three successfully performed operations without a fatality. A combination of local anesthesia and chloroform narcosis is recommended. Botey objects to fasting after the operation to prevent nausea and recommends good nutrition to sustain the heart. Prothesis is also discussed. Ed.

REPORT OF ELEVEN CASES OF DIPHTHERIA AND PSEUDO-DIPHTHERIA—INFECTION IN THE MASTOID WOUND.

Dr. J. J. Thomson, New York City.

I take the liberty of reporting the following cases of diphtheria and pseudo-diphtheria infection in mastoid wounds because they are unique in my experience, and while I have not carefully looked over the literature of the subject I cannot recollect reading a report of a single case. In the light of this experience I can recall, however, a case treated in 1911 in which I am now sure there was an infection of this kind, but which I did not recognize at that time. As no bacteriological examinations were made of the mastoid I have not included it in the series but will briefly outline it. The patient was a young lady, about 17 years of age, whose mastoid wound followed the usual course for about three weeks, when the granulations assumed a white appearance without distinct membrane formation, and ceased to grow. The glands in the neck on the side of the mastoid were swollen and tender. A few days later the young lady developed a mild pharyngeal diphtheria with positive culture. The infection was extremely mild and the behaviour of the wound exactly similar to that in the cases here reported.

With so many cases occurring to one individual in six months I could not help but feel that I was in some way responsible for infecting one from the other but could find no way to improve on the care exercised in the line of asepsis; cultures from my nose, throat and fingers were negative for these organisms, although they contained other bacteria. It is also a fact that at the same time I was dressing many other wounds and mastoids, and continuously operating on the nose and naso-pharynx without trouble in this respect. During the summer I learned that a colleague had four cases during the same period, which presented the same symptoms and appearance. I was assisted in the bacteriological work by Dr. L. B. Goldhorn, Dr. Callison, pathologist of the Manhattan Eye, Ear and Throat Hospital, and the Mt. Vernon Health Department.

Case 1: Mrs. A. E. S., aged about 42 years, had a mastoid operation on the right ear five years ago. The wound healed and she had no trouble until January 1, 1913, when she began to have pain in the ear and some swelling of the old scar. January 3 the infection had progressed so that it was necessary to operate again.

The scar was opened and a large cavity filled with pus and granulations was found, but practically no new necrosis in the bone. There was slight caries in the region of the aditus. Only a simple mastoid was done. The wound was extremely slow in granulating and about January 25 had a peculiar white appearance. The temperature was normal and the patient felt pretty well and was up and around the house. A few days later she began to complain of soreness around the wound and extending into the neck. On January 29 a culture was taken from the wound for the purpose of having a vaccine made. The pathologist reported a pure culture of diphtheria bacilli. The margin of the wound was now quite red and thickened for a distance of one-half inch. The patient complained of slight sore throat, but no membrane could be seen and the discomfort was very slight and soon passed away. Fifteen hundred units of antitoxin were given and produced very little reaction. The wound continued very slow in healing and maintained the white appearance for several weeks. It was packed with strong bichlorid solution and gradually the pseudo-membrane cleared off and the granulations took on a healthy appearance. The experience of finding diphtheria in a mastoid wound was a new one to me and in the absence of clinical symptoms other than the appearance of the wound I doubted the pathological diagnosis and submitted a culture to another pathologist who at first thought we were dealing with a xerosis bacillus, but after plating and cultural tests found several colonies of diphtheria bacilli. The mastoid wound in this case was entirely healed on May 7. Prior to this there was no diphtheria in the neighborhood and I had not seen a case in two years. No cases of diphtheria developed in this family, consisting of parents and two grown children.

Case 2: F. M., aged 4 years. First seen January 31, 1913, when he had an acute otitis media in both ears. Paracentesis was done on both. The left ear closed up promptly but it was necessary to do a simple mastoid operation on the right ear on February 2, 1913. On February 16, I noticed that the wound was not doing well, and an area of redness and thickening had developed around the margin for a distance of about one-half inch. A culture was taken and reported to have diphtheria bacilli. The child at all times felt well, had no fever and was active and playful, and there was no pharyngeal diphtheria. Tympanum was dry and the hearing good. On February 21, a sister of the patient had a slight patch of membrane on the tonsil and her temperature was 102°. Culture from this contained diphtheria bacilli. The children were isolated, and the case of pharyngeal diphtheria presented symptoms for only a few days. On February 22, the child's mother complained of a sore throat and while there was no distinct membrane, culture from the throat contained diphtheria bacilli. The following day the nurse who had taken care of both children became ill with pharyngeal diphtheria with positive culture from the throat and some temperature. Fortunately all the cases were very mild, and the only member of the household who did not develop pharyngeal diphtheria was the boy who had the infection in his mastoid wound, and he showed no symptoms at any time outside of the local condition in the mastoid. The wound was very white and seemed to be covered with a pseudomembrane which could not, however, be detached. After three weeks' packing with bichlorid solution, this cleared and the wound healed very rapidly. He was discharged April 15, 1913. Antitoxin was administered in all these cases.

Case 3: D. B., aged 10; first seen February 14, 1913, with acute otitis media and mastoiditis; mastoid operation on February 17. The wound healed nicely and was entirely closed on March 25, but broke down again in four days and was reopened, when about a drachm of pus was evacuated. Prior to this time the clinical appearance of the wound did not suggest anything unusual nor did it at any time, but within a few days a brother of the patient developed a pharyngeal lesion, a culture from which showed a preponderance of pseudo-diphtheria bacilli. A culture was then taken from the mastoid wound and the same organism was found. The illness of the brother was very mild and he felt quite well in a few days. Antitoxin was given. The child with the infection in the mastoid wound did not develop diphtheria in any other region. The wound was extremely slow in healing but eventually healed perfectly. Subcultures from the organism were injected into a guinea pig but produced no effect on the animal.

Case 4: G. C., aged 11; first seen on February 26, 1913, suffering from acute otitis media and mastoiditis. Paracentesis done but it was necessary to operate on the mastoid on March 2. The case ran the usual course until about April 1 when the wound looked rather white and ceased to granulate. The child had no fever nor constitutional symptoms of any kind, and the pharynx was clear. A few days later the characteristic red area developed around the margin of the wound and a culture was made. This contained the pseudo-diphtheria bacillus. The granulations continued slow for a few weeks when the whiteness disappeared and the wound was healed May 22, 1913. No antitoxin was given and there was no development in the family, consisting of parents and three children.

Case 5: L. L., aged 9 years. Operated for acute mastoiditis on March 3, 1913. Pus and granulations were found in the mastoid. The wound did well following the operation for about three weeks when it began to assume the whitish appearance and red infiltration surrounding the margin which I had now learned to be characteristic of diphtheria infection. The middle ear also began to discharge again and continued to do so for one week. The child, however, showed no constitutional disturbance and there was no elevation of temperature and the pharynx was clear. The glands below the mastoid were swollen and tender as they were in all the other cases. The granulations in this case appeared to be slightly necrotic and an attempt to remove the surface did not result in removing any membrane, but on removing the whitened granulations rather excessive bleeding occurred. After about four weeks the granulations assumed a healthy appearance and the wound healed readily, the patient being discharged on May 20, 1913. No antitoxin was used and there were no developments in the family, consisting of parents and one child, age 13 years.

Case 6: T. H., aged 3 years; operated for acute mastoiditis on March 10, 1913. The mastoid was filled with pus. This was a particularly delicate child and had only recently recovered from pneumonia, and following the operation had intestinal difficulty for some weeks. He had a slight increase in temperature throughout his convalescence, not going over 101°, except on rare occasions and then only on a single day. I make note of this because it is the only case where temperature was a factor without the development of a lesion outside the mastoid wound. The wound followed the usual course for about four weeks or until April 10, when it assumed the appearance already described. The inflammatory infiltration at the margin was more marked than usual and the child was restless for a few days. Culture contained pseudo-diphtheria bacilli and staphylococci. On April 20 a brother of the patient developed a sore throat with a high temperature and cultures contained the pseudo-diphtheria bacilli. The illness was very mild, lasting only a few days. Subcultures injected into a guinea pig produced no ill effect. The mastoid wound made no progress for about three weeks, when it became normal in appearance and healed, and the patient was discharged on May 10, 1913. There was no discharge from the middle ear a few days following the operation. No antitoxin was given to the mastoid case, and no other cases developed in the family.

Case 7: I. P., aged 4 years; first seen on February 17, 1913, when he had acute otitis media in both ears. Paracentesis was done and he was not seen again until April 1 when he had an acute mastoiditis on the right side. Operation was performed on the following day. The mastoid was filled with pus. The healing in this case was uneventful and no diphtheria organisms were found in the culture from the wound, but it is reported because on April 26 a sister of the patient developed a sore throat with a high temperature and culture showed the pseudo-diphtheria bacillus. Antitoxin was given to this child but not to the mastoid case. The illness in the sister was very mild lasting only a few days. The mastoid wound was healed on May 28, 1913.

Case 8: R. O., aged 9 years; first seen on April 2, 1913, suffering from acute otitis media and mastoiditis on the right side. Paracentesis was done and the tenderness cleared up, but recurred and required a mastoid operation on April 27. The mastoid was filled with pus and the bone was exceptionally necrotic. The patient did well for about a week when he began to run a septic temperature, and had two chills. The blood-count was normal and we were unable to obtain a satisfactory blood-culture, but the clinical symptoms were so characteristic of sinus thrombosis that the sinus was explored and found to contain a clot in the bulb. Cultures taken from the blood of the lateral sinus contained the pseudo-diphtheria bacillus and streptococci. The jugular was ligated and divided below the facial vein. After a week the temperature became normal and the subsequent history was not unusual, the child making a good recovery. The mastoid wound did not develop the appearance of any unusual infection. Subculture injected into a guinea pig caused death in four days and streptococci were found in cultures taken from the blood in the heart.

Case 9: Baby T., aged 3 years. This case occurred in the practice of Dr. W. C. Phillips. He did an acute mastoid operation on April 7, 1913, on the right ear. The mastoid was filled with pus. I did the dressings on the case subsequently, but there were no instruments or dressings that were used in the previous cases used in this or in the following case. The wound did well until about May 1, when it showed signs of diphtheria infection. A culture taken contained pseudo-diphtheria and pyocyaneus bacilli. Shortly afterward the wound showed the characteristic appearance. The granulations were white and the margins infiltrated, and the glands below the mastoid were swollen and sore. The baby at that time felt well and had no fever. May 9 she developed fever, and on

May 12 suffered from laryngeal diphtheria, requiring intubation. The laryngeal manifestation was mild. She coughed the tube out the first night and had no difficulty in breathing when it was not replaced. May 21, she was breathing well but had some aphonia still. The whiteness had disappeared from the mastoid wound, and it was beginning to granulate normally again. The subsequent healing was uneventful. Antitoxin was given in this case. No other cases developed in this family.

Case 10: G. H., aged 9 years; also occurred in the practice of Dr. W. C. Phillips. It was operated upon for mastoiditis by Dr. Phillips on April 3, 1913. I did the dressings afterward. The wound did exceptionally well until May 10, when the granulations ceased to be active, but there was no membrane present. May 19 a culture was taken as the wound began to look suspicious. This contained the pseudo-diphtheria bacillus and bacillus pyocyaneus. May 22 the appearance of the wound was typical, the granulations being absolutely white and the area of infiltration and redness surrounded it for about one-half inch, and the glands below the mastoid were red and swollen. The child was feeling well and only complained of slight sorenesss around the wound. No temperature or other clinical symptoms were noted. After about three weeks the granulations assumed a normal appearance, and the wound healed promptly. No antitoxin was given. The patient had three brothers none of whom were infected.

Case 11: W. J., aged 2 years; first seen October 2, 1913, when he had an acute abscess in the right ear. A paracentesis was done and treatment outlined. I did not see him again until November 6 when he had a large subperiosteal abscess, but complained of no pain and had no chills and no temperature. The child felt well and was playing with his toys. The mastoid operation was performed the next day. The entire mastoid was destroyed, and what appeared at first to be a large perisinus abscess and granulation mass proved to be a mass of polypoid granulations occupying the position of the sigmoid sinus, the outer wall of which was entirely destroyed. On removing this mass of granulations, there was no bleeding. The sinus was slit as low as possible and was followed backward for about an inch when it terminated in a funnel-like closure which resisted further progress. The wall of the sinus itself was about one-eighth inch thick, and there was an obliteration of the sinus toward the torcular end. The jugular was ligated and severed below the omo-hyoid, following which the sinus was curetted toward the bulb, but no bleeding was obtained. The neck-wound healed primarily, and the only increased temperature the child had was 102° on the day following the operation. Healing and the entire course was uneventful until about November 5, when I noticed that the granulations were not of good character, and granulation ceased, although there was no membrane or anything else to make me suspicious of pseudo-diphtheria infection. A culture was taken, however, and the pathologist reported that there were bacteria resembling pseudo-diphtheria, but he would not commit himself definitely. During this time the child was running an intermittent temperature and was restless. On November 9, a well-marked erysipelatous eruption developed and proved to be the worst case I have ever had, extending over the entire head, face and torso. On November 20, while doing a dressing I noticed in the mastoid wound a couple of suspicious patches, sloughy and white in color and I took a culture. The pathologist reported almost a pure culture of pseudo-diphtheria bacilli. No estimate of the constitutional effect of this infection can be made as the child was still suffering from erysipelas and at the time the culture was taken his temperature was 104°.

During this unusual experience, I took cultures from my nose, throat and fingers, those from the fingers without scrubbing. Cultures from the throat contained staphylococci and various bacilli, none of which were diphtheria or pseudo-diphtheria. Cultures from the nose and fingers contained pure staphylococci.

Briefly analyzing these cases it is interesting to note the following points: 1. The development of so many in a period of six months. 2. The children who had the infection in the mastoid wound developed it in no other region, except in the supposed case where no bacteriological examination was made of the secretion in the mastoid wound, although other members of the family developed pharyngeal diphtheria in some instances. 3. The entire absence of marked constitutional symptoms. 4. The local manifestations were typical and identical in every case. 5. No local therapeutic measures seemed to influence the course of the infection. Bichlorid of mercury, carbolic acid, and cresatin were used, but the cases dressed with plain sterile gauze recovered as well and in the same time. The infection seemed to be self-limited and uninfluenced by local measures. 6. The injection of antitoxin did not seem to influence the course of the infection. 7. Since writing these reports Dr. Goldhorn has told me that he injected thirteen cultures and subcultures into guinea pigs without effect on the pigs, except in the case containing streptococci when death occurred in four days.

40 West Forty-seventh Street.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular Meeting, December 17, 1913.

DR. WILLIAM W. CARTER, CHAIRMAN.

(Continued from page 70, January, 1914.)

DR. HARMON SMITH said that from examination of the growth removed he certainly considered it an inoperable case, in fact he looked upon the majority of extrinsic laryngeal cancers as presenting an unfavorable condition for successful operation, as regards permanent eradication. It had been stated by Dr. Chevalier Jackson, who has had ample opportunity for the observance of all forms of laryngeal cancer, that when the growth has become extrinsic and therefore has gone beyond successful operation by thyrotomy he considered the outcome unfavorable. Dr. Torek had not stated the character of the microscopical findings of this growth, which would be important in considering the prognosis; some of the slow-growing cancerous conditions as well as lympho-sarcomata were more easily eradicated by operative measures than the more malignant forms of such tumors. Dr. Smith said that he would like to know Dr. Torek's prognosis in this case.

DR. HERZIG asked how much time elapsed between the operation and the complete healing of the wound.

DR. TOREK said that the growth was an epithelioma. The prognosis he considered rather unfavorable, for the reason mentioned. It is the usual experience that when a growth has extended beyond the limits of the larynx the prognosis is unfavorable. Although there has as yet been no recurrence in this case and although the patient has gained 18 pounds since operation, he could not regard him as safe against recurrence. The tumor, indeed, was at first an intrinsic growth and has only gradually extended beyond the limits of the larynx. Those that are extrinsic from the start are even more unfavorable. The time required for the complete healing was four and a half weeks. A tiny pharyngeal fistula which had been present up to that time was completely closed, the gastrostomy opening was closed, and the patient swallowed again.

The amount of novocain used requires a little explanation. Novocain is usually quoted as being one-seventh as poisonous as cocain, and besides that the fact that suprarenin is present, which constricts the vessels, explains that for the time being there is very little absorption, and the patient gets very little of the enormous quantity used in that way. Of course, some of the novocain flows out again during the operation, and some is removed with the tumor, so that the sum total is very much less than would appear. The effect of the suprarenin remains for hours, and the absorption being slow the patient can stand more than if the absorption were rapid.

As to the gastrostomy, which Dr. Freudenthal had not seen used before in such cases, Dr. Torek said that he had not heard of it before either, and although he has had the literature examined there does not seem to be any mention of its use in such connection, which seems rather astonishing, for its value seems self evident, and it is surprising that it was not thought of before.

1. Another Unusual Laryngeal Tumor. Specimen. 2. A Curious Esophageal Experience. Skiagraph and Foreign Body.

DR. HUBERT ARROWSMITH.

(To be published in full in a subsequent issue of THE LARYNGOSCOPE.*)*

DISCUSSION.

DR. FREUDENTHAL said that he had had the good fortune to see the second case and it was absolutely inexplicable how the pin could have turned around as it did. It is not to be assumed that the esophagus is so wide that the pin could have turned around but whether it happened, as Dr. Arrowsmith suggested, through the act of vomiting or by some other cause, the fact has to be accepted. He had never heard of a similar case.

DR. CARTER: We have just celebrated the fortieth anniversary of this Section, and on that occasion Dr. Delavan presented a very beautiful and artistic tablet to the Society, which has been placed on the walls of this room. He also presented some very interesting and valuable memorabilia bearing on the early history of the Society, and some early models of instruments which have been improved and are still being used. At the time of the anniversary, a brief motion was made to thank Dr. Delavan, but the audience consisted largely of members of the Academy not enrolled in the Section and outsiders, and was not truly representative of the Section. It seems to me, therefore, that it would be a good plan to have a formal motion passed by the Section, thanking Dr. Delavan for these valuable gifts, and I therefore suggest the following:

Resolved: That the thanks of the Laryngological Section of the New York Academy of Medicine are hereby rendered to Dr. D. Bryson Delavan for the beautiful and artistic bronze tablet commemorating its fortieth anniversary; for the valuable historical memorabilia; and for the models of instruments used in the early days of our specialty. Be it further

Resolved: That the members of this Section recognize these acceptable gifts as tokens of his friendship and loyalty to the Section.

The motion was seconded and unanimously carried.

Acute Phlegmonous Epiglottiditis: DR. M. D. LEDERMAN.

(To be published in full in a subsequent issue of THE LARYNGOSCOPE.*)*

DISCUSSION.

DR. HENRY L. SWAIN: The experience of no one individual counts for a great deal in this matter, as can be judged from what the reader of the paper has just said,—that he has been twenty years without seeing a case and then had four in a group.

When Dr. Swain's attention was attracted in the same manner to the subject of a group of three cases coming very close together, he bethought himself of some explanation of why they should be so quickly and so seriously involved, and he recalled a case of real cyst of the epiglottis which had had the habit of filling up at varying intervals. On looking up that case he found that that individual had had a cyst which at four different times had filled up with fluid, and twice broke of itself under similar symptoms as those referred to by Dr. Lederman. He saw the man in the last two attacks. Each time he tried to destroy the cyst so that there would be no recurrence and succeeded the last time, for there had been no recurrence in twenty years. There was a distinct yellowish or greenish stringy mucus such as is characteristic of bronchial cysts. The thorough cauterization which was done the last time had apparently destroyed the lining membrane of the cyst.

He had another case, in the intervening years,—a medical student whom he saw in three different attacks, and here also had difficulty in cauterizing the lining membrane and destroying the cyst; so he had wondered if in most of these cases we did not have to deal with a small cyst of one kind or another. In other parts of the body—in the Meibomian glands for example—patients have such cysts, entirely quiescent, which become infected after having been immune for a long period. He had been looking for such a cyst in a quiescent stage ever since and had concluded that that theory was wrong,—if for no other reason, because there are not many glands in the tissues on the lingual side of the epiglottis. It is a thin mucous membrane.

The whole subject of epiglottiditis seems to be closely correlated with that of edema and inflammation of surrounding parts.

He thought that Dr. Lederman's last case was one of peritonsillar abscess of the lingual tonsil. The distinction between the end of the tongue and the beginning of the epiglottis is not very well defined. If one could explain why we have edema, anyway, it would be simpler to explain why this area becomes infected. When there is invasion of the swollen areas by micro-organisms, we have the abscesses. The question of edema had much interested him, and he hoped it would be explained before he died. He would like to know what determines the selection of, and the infiltration in, a given area.

Two of his own cases of epiglottiditis without abscess-formation had a definite attack of grip previously, the two patients being two elderly persons who had had some tonsillar inflammation and then this edema,—just as it always follows some infection in the nose or throat. He presumed that a mild inflammation might exist and the patient not know it. He did not believe that epiglottiditis would often occur without some previous inflammation. If any one part was more to be blamed than another, it would be the lymphatic tissue of the base of the tongue or in the lateral columns of the pharynx.

The original suggestion that these epiglottic cases were of malarial origin, he thought could not obtain at the time of the year and in the region spoken of by Dr. Lederman. The various other explanations all seem futile. We don't know why they come, but they are interesting and very serious cases when they do occur.

Another point, showing the different methods of therapeutics. Dr. Lederman spoke of applying ice and ichthyol, and they got well. In edema cases he had the invariable rule, when seen early, to apply leeches. He thinks that helps, but he uses steam on the inside. He finds nothing more comfortable to the patient than the steam atomizer. Dr. Lederman astringes the vessels by cold, and invariably with the steam atomizer adrenalin is in the solutions used. He had used ice in the early stages at the same time as the leeches, but later found no other means so satisfactory for getting the adrenalin and alkalin solutions into the region where one wanted them as a good steam atomizer.

Fischer suggested the possibility of edema being due to an acidosis of the tissue. While this does not explain everything, he has seen good results from the local application of alkalies, including the citrate of soda as one of the salts used.

These epiglottic cases are very threatening and we can never view with complacency the presence of an edematous mass in the throat, at the entrance of the larynx; yet good care and faithful attention will usually win out.

Dr. Cyril Barnert said that Dr. Lederman had very kindly asked him to take part in the discussion of the paper and he thanked the Section for the courtesy of the floor.

Dr. Lederman has treated the subject of acute phlegmon of the epiglottis so very thoroughly and comprehensively that little is left to be added and nothing to be subtracted. Having seen some eight cases within a short space of time, including two of those reported by Dr. Lederman, a few salient facts had been impressed upon him. Of these eight cases in but two instances did the attending physician have any idea of the location or nature of the trouble, although the condition could easily have been discovered with a laryngeal mirror. The question of diagnosis should be a very easy one. There could be no discussion of the correctness of Dr. Lederman's conclusions as to the etiology, symptoms and treatment of these cases. The infection in the epiglottis and neighboring tissues was apparently a primary one, and no distinct etiological factor was discoverable.

Dr. Barnert said that in his opinion the most important factor in this type of cases was the necessity for eternal vigilance. The laryngologist must devote his entire time to the case, to the exclusion of everything else. Not only must he be ready for a tracheotomy at any instant, should circumstances require it, but he must also examine the larynx every twenty or thirty minutes and take measures to limit or prevent any further induration or edema. Such work cannot be left to an assistant unless he be a thoroughly trained one, and it is the duty of the laryngologist to attend the case until all danger is over.

The Doctor said that he had included in this series two cases because of the great similarity of the symptoms and appearance. One of these was a rapidly growing gumma of the epiglottis which was a mixed infection, requiring early incision and curettage and was an instance in which the etiological factor was obtainable. The other was a burn of the epiglottis. A good woman found that she had put into her mouth a piece of potato too hot to remain there, and she chose to swallow rather than to expel it. A spasm of the esophagus deposited the hot morsel upon the epiglottis, and when she applied for treatment she was suffering from dyspnea due to an enormous bleb almost entirely filling the larynx. When this was punctured she was relieved. In some of these eight cases the phlegmon was not limited to the epiglottis. Some were arytenoid and some were at the base of the tongue. All of the cases recovered, and up to the present time no recurrence or sequelae have been noted.

Dr. Coffin said that he had seen his first case of this kind about a month ago. As in the cases which Dr. Lederman had so well described, the epiglottis was so swollen that he could not see into the larynx at all. The case had been reported to him over the 'phone, when admitted by the house-surgeon, and feeling as Dr. Swain does about steam, he had instructed the house-surgeon to give the patient steam inhalations with benzoin. When he saw the case, his physician was with him and considerably worried over the dyspnea. Dr. Coffin did not feel that a tracheotomy was called for. The man was kept on the inhalation treatment, and argyrol was frequently dropped over the edematous surface. If there were any pus, it must have been absorbed. No incisions were made. The case was discharged quite recovered in about one week's time.

Dr. Berens said that he was surprised to hear that this condition was so common. In his own experience he had seen but one case of phlegmon of the epiglottis that could really be called such, and that was in conjunction with, if not caused by, a lingual tonsillitis. He had seen a number of cases of acute inflammation of the epiglottis but they have been in connection with acute follicular tonsils, spreading to the tongue. He had never seen pus in the epiglottis. It seemed to him that these cases are rather rare.

Dr. J. Horn said that he had seen five cases; two of them ruptured spontaneously; one he incised and on one he did a tracheotomy; another was a mixed infection; a broken-down gumma of the epiglottis. Two of these cases he traced to the habits of the patients. They were rabbis and were slaughtering poultry, and did not take the trouble to clean the knife that they used in slaughtering the chickens, but would hold it in their mouths between the acts. They probably caught the infection in that way.

Dr. Thurber said he had seen two cases, one of which was a true abscess of the epiglottis, and incision brought out a quantity of pus; the other resembled a phlegmon at the base of the tongue but the diagnosis was rather acute thyroiditis and occurred in a woman of 74 years who was taking potassium iodid. He thought the source of infection in these cases was always through a break in the mucous membrane either by a scratch from a hard bit of food or liquids taken too hot.

Dr. Herzog inquired whether all the cases affected were on the anterior surface of the epiglottis or on the posterior surface.

Dr. Lederman, in closing the discussion, said that the reason he had put these experiences in the form of a short paper was for the purpose of differentiating them from the simple edema of the larynx which is sometimes associated with pharyngeal faucial infection. These four cases were a distinct infection of the epiglottis. In the last case, this pus followed an incision of the epiglottis. Whether or not the source of the pus was at the junction of the epiglottis and the base of the tongue was a question, but the others were distinct involvements of the epiglottis, and there was no previous history of sore throat or anything of that kind. None of these plegmons was on the laryngeal surface of the epiglottis. One was on the side and the other two were on the upper portion of the organ where the incisions were made; but marked edema can and does come from infection of the lingual tonsil in this region.

Perhaps Dr. Barnert may recall another case, which was not included in this paper;—the patient, a woman, had a tonsilitis. That case was similar to the ones reported, but did not go on to suppuration. The patient was a sister of the first case in my report. She had a distinct edema of the aryteno-epiglottic folds,—but that condition cleared up under local applications.

Dr. Abrahams had called attention to the treatment of phlegmonous conditions of the throat with ichthyol.

Dr. Lederman said that he had recently had a case of infection of the faucial tonsil, complicating a nephritis, with extensive edema extending to one side of the larynx, not internal to it. It was a staphylococcal infection and subsided without suppuration (deep incisions were made into the tissue without pus being found). This was a staphylococcus infection, but under elimination treatment for the Bright's disease and applications of ichthyol frequently repeated, the case cleared up.

Dr. Lederman stated that he wished to go on record with the statement that these cases were acute infection of this region, and not secondary manifestations. It is surprising that we don't more often see cases of this kind, when we take into consideration the unlimited number of surgical treatments of the upper air passages—the tissue resistance of these cavities must be remarkable.

Paper: Hypertrophied Tonsils and Adenoid Vegetations in School Children in New York City. DR. S. JOSEPHINE BAKER.

(Published in full in THE LARYNGOSCOPE, *February, 1914, p. 143.)*

DR. GUTTMAN inquired whether the inspection is made only by doctors, or by nurses also. With regard to the matter of diagnosis, and indication for operation it largely depends upon who makes the diagnosis.

In regard to methods of operation, he could not say whether this method was advisable. He recalled about four cases in the last few years that were operated upon in hospitals of this city under general anesthesia and which terminated fatally. Dr. Baker mentioned in her paper one case which terminated fatally. All of these deaths had some excuse; in some the diagnosis was enlarged thymus. In others, the anesthesia was given as the cause, etc. In no case was there a post-mortem made. Anyhow, four cases that he knows of terminated fatally under operations done with general anesthesia. In the fifteen or eighteen years that he has been operating, he has had no mishap under local anesthesia. The operation takes only a few minutes—about three to five minutes. In enucleating, the tonsils are taken with the capsules. The pillars on both sides are detached, the wire loop is applied, and the thing is done. It takes only three minutes, and the patient is, as a rule, only momentarily shocked. The shock is not as great as by putting a child under general anesthesia. It is true that the children sometimes struggle, but the operation requires only a few minutes.

Dr. Emerson said that he had personal knowledge of two patients who died under cocain anesthesia, and Dr. Guttman had spoken of four cases that terminated fatally under general anesthesia. Considering the greater number that are operated under general anesthesia, those that die under local anesthesia constitute a larger percentage than those under general anesthesia.

Dr. Harmon Smith said that he was confident that he voiced the sentiment of those present in extending to Dr. Baker congratulations upon the valuable paper which she had presented. He was equally pleased that those children having nasal obstruction had been so presented and that such obstruction had not been attributable entirely to adenoids; that in many instances turbinated hypertrophy, septal deviations and high arched palates occasioned symptoms of adenoids and were as detrimental to the progress of the patient as adenoids themselves. Dr. Smith said that he did not think the Doctor should conclude that specialists disagreed so widely concerning the removal of tonsils, from the replies she had obtained, as in the majority of instances printed slips were sent out, asking didactic questions, in which but small space was given for the doctor to answer in, in which case the answer was too brief to give a full and concise opinion concerning the subject at issue. The only way to find out what specialists feel in regard to conditions of this kind is to collect a certain number of articles by leading men and from them collaborate an opinion based upon a more extensive discussion of the subject.

Dr. Heller said that he was particularly pleased to hear what Dr. Baker had said about the manner of inspection and the method of determining whether or not a family could afford to pay, for he happened to be one of the Bronx physicians. There was a time when the nurses were very active in taking the children to the Board of Health Clinics and having them operated upon, in order to make a good record. He knew of a number of cases where the nurses from the schools went to the house and took the children to the Board of Health Clinics and had them operated without giving them a choice in the matter. The antagonism was not so much against what the Board of Health had done as to the manner of doing it. He did not think the medical profession objected to the Board of Health taking these precautionary measures, but there is good reason to object to the children being taken from their homes and carried to the Board of Health Stations, regardless of home conditions. There are a number of hospitals and dispensaries in the Bronx that are as competent to take care of these cases as is the Board of Health.

Dr. Cocks said that we are to be congratulated that the Department of Child Hygiene is in such capable hands as those of Dr. Baker. Not long ago, in speaking of this subject, she told him that the physicians of this city do not realize that the Board of Health annually refers a large number of children to them for private adenoid and tonsil operations.

(*To be continued*).

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

Regular Meeting, April 15, 1913.

Dr. Ross Hall Skillern, Chairman.

(Continued from page 160, February, 1914.)

The other patient presented unilateral evidence of disease beginning with herpes at the root of the left side of the nose, which traveled down to the tip then up over the vertex of the lambdoid. Later she developed herpes of the cornea, iritis, hypopyon and loss of sight. She was seen by a number of consultants, eleven in all was the statement made, both neurologists and physicians, without staying the process of the disease, and unfortunately opiates had been rather freely administered for the relief of pain until she finally demanded them. This, too, was a sinus case, ethmoid and probably sphenoid, though of this latter, that is to say sphenoid involvement, I cannot speak with absolute certainty.

As to the relationship between tonsillar disease and general bodily disturbances, notably arthritis and endocarditis, this is too well recognized to merit special observation. The relationship between pyorrhea and furunculosis or a low-grade sepsis, seem to be less well known. So, too, with disease of the lingual tonsil which may be the seat of disease, even tuberculous, as in a case reported by Biedert.

I feel that Dr. Daland should be congratulated for bringing this matter prominently before the attention of all of us.

Dr. E. B. Gleason: When there is too free respiration the results may be equally as disastrous. In tuberculous, the nose has been found to be a mere shell. As to general infections following tonsillar conditions I am still a "doubting Thomas." In only one case that I am aware of could rheumatism be traceable to peri-tonsillitis. I have been asking in the hospital about cases of rheumatism following tonsilitis, and they reported result of pressure within the nose and are relieved by 2 per cent solution of cocain. Speaking of infections, I would refer to latent empyema of the maxillary antrum. Individuals with this condition often claim perfect only one case in many years, and then only after the tonsils had become normal. A mass of pus from side of capsule is of rare occurrence; a mass of pus in alveolar process is very common. Much more plausible, systemic conditions result of alveolar abscesses. There should be a careful examination of the teeth. Tubercular tonsil is not common. If a child is mentally defective the removal of tonsils and adenoids does not improve the condition, a fool still remains a fool. Whatever gain follows the operation is the result of improved hearing. Eye headaches are worse at night, and nasal headaches almost invariably worse in the morning and health, and after cured say they never knew what good health was before.

Regular Meeting, May 20, 1913.

Anatomy of the Nose, Naso-pharynx and the Pharynx, together with Demonstration of Actual Specimens and Lantern Slides. DR. A. HEWSON.

Technic of local anesthesia in submucous operation. DR. MACKENZIE.

Technic of Local Anesthesia in Submucous Operation.

Dr. Mackenzie described his technic of local anesthesia in the submucous resection of the nasal septum, by the use of 20 per cent solution of cocain and then Schleich's solution. He uses one-inch gauge strips for approximating the denuded surfaces and for the control of hemorrhage, instead of the use of cotton splints, and urges that the use of cotton in nasal surgery be abandoned.

DISCUSSION.

DR. HERBERT M. GODDARD: It has been my pleasure to witness several of Dr. Mackenzie's operations on the nasal septum. I have found that I have been able to get very good approximation of the denuded surfaces by the use of Simpson's splints and the day following the operation remove a portion of the splint on each side. This allows the patient greater freedom of breathing. In case of persistent bleeding I have found that strips of one-inch gauze controls of hemorrhage better. There are two very important rules for the beginner to remember and they are to be sure (1) that the primary incision is through to the cartilage and that (2) the incision is well anterior to the deformity.

DR. E. B. GLEASON: Packing tightly with long strips of gauze I believe to be generally the cause of sepsis. Whenever I am obliged to pack the nose I always feel that my patient is in considerable danger of at least a slight sepsis and some soreness of pharnyx and tonsillar region. I remember one or two years ago of reading an article in THE LARYNGOSCOPE which reported a case, after tonsillectomy, of phlebitis of the internal jugular, the infection extending up into the lateral sinus and forward into the cavernous sinus. One eye was lost, and ultimate recovery with some sight in the other eye. Good approximation can be obtained by the use of Simpsons splints. As regards the method of injection of Schleichs' solution, I cannot help but think that this method is open to very serious objections. Here we have many holes, and when the mucous membrane is stretched in denuding there is danger of the instrument slipping through.

Cocain Poisoning. I think it would be a good idea if we should establish a standard method of cocainization. I would suggest first a 2 per cent to 4 per cent cocain solution locally applied, then packing with 1-1000 adrenalin solution, then rubbing with saturated cocain solution, the adrenlin preventing the absorption of a large amount of cocain. I recall one of my cases of cocain poisoning where the patient lost consciousness. However, the symptoms somewhat subsided after the use of strychnia. Practice on the cadaver is of little use on account of the ease of separation of the muco-perichondrium. For the separation of adhesions, Carter, of New York, has invented a curette and raspatory which I have found to be of great service.

Dr. R. F. Ridpath: The injection of Schleich's solution has advantages, particularly in those cases where there are angular deflections, but in the majority of cases it is not essential. For packing the Simpson splint is to be preferred to gauze packing, it is easier of introduction and removal, and rarely is there post-operative bleeding. I do not believe that we place sufficient importance on this operation as is warranted, and in case any other operation is needed on the nose it should be done before the submucous resection, and not at the same time.

Dr. Wm. A. Hitschler reported a case of perforation in removing the cartilage with the Ballenger knife. The cartilage was kept in normal salt solution until completion of the operation, and then placed between the layers, completely closing the perforation. On the eighth day a redness appeared on the edge of the cartilage, and the next day it was covered with crusts. Later the perforation was revealed, although the cartilage did not come away; evidently it must have moved upwards.

Dr. Geo. W. Mackenzie (closing the discussion): Infection after the submucous resection of the septum is favored under certain conditions as follows: (a) Acute coryza, a fact which can readily be understood. (b) Acute infection of one of the sinuses is very prone to favor an infection of a wound of the septum. (c) Infection of the adenoids or tonsils. A patient need not manifest an acute infection of these glands, for instance any old pathologic condition, though temporarily quiescent, the effect of an operation on the septum with incident packing of the nose may be sufficient cause to awaken an acute pathologic condition in them and from this focus an infection may readily spread to a wound of the septum. (d) Undue injury or lacerations of the septum favors infection. (e) The combining with the submucous resection, one or more operations upon the turbinates. (f) A pack in the nose, but only when combined with one or more of the conditions previously mentioned. A gauze pack in the nose, is far safer than a cotton or other more or less impervious dressings. For instance, take a piece of cotton and insert it into the canal of a running ear for some time, when you come to remove it you will observe that the side presented inwardly is wet and caked with discharge, while the side externally exposed is dry; on the other hand if you insert a piece of gauze, when you come to remove it, you will find it more or less uniformly wet with discharge. The cotton has behaved like a cork, while the gauze acts as a wick.

Next, as to the application of adhesive strip to hold the dressings in place, it is purely surgical, and is practiced by surgeons in general, no matter upon which part of the anatomy an operation has been performed. Personally I came to the use of adhesive strips quite independently. A patient upon whose septum I had operated presented himself on the second day with all dressings removed. Immediately I determined to fix the dressings in such a manner as to deter any patient upon whom I oprated doing this same thing. The idea appealed to other surgeons who saw me do it, and they adopted it also.

I have never had any serious infection following a tear of the mucous membrane, for the reason that I have the patient blow the nose before packing which replaces the flap into its normal position. Then the nose is packed in a manner to hold the flap in place until healing takes place.

The toxic effect of cocain is reduced if the patient's stomach is full. We are all aware of the fact that toxic substances produce a greater degree of toxicity when the stomach is empty than when full. You will recall the effects of alcohol and tobacco on an empty stomach. As an antidote there are probably none better than nitro-glycerin and amyl nitrite to which I have already referred.

The amount of cocain absorbed from the Schleich solution injected cannot exceed a quarter of a grain. The whole 100 cc. of solution contains but a grain and a half. Not more than one-sixth of the solution is used, therefore not more than one-quarter of a grain of cocain.

Regular Meeting, December 16, 1913.

DR. E. B. GLEASON, CHAIRMAN.

Latent Mastoiditis. DR. O. A. M. MCKIMMIE.

DR. MCKIMMIE took up in detail all the different forms of typical mastoiditis, paying particular attention to those forms of inflammation of the mastoid where the clinical symptoms were altogether lacking or so obscure as to make diagnosis doubtful or impossible. The different complications were also handled in detail, where such symptoms were obscured or latent. Mastoiditis existing for weeks and months without being suspected and yet where great destruction of the temporal bone had taken place was described and, as far as possible, rules laid down for guidance in making the diagnosis. A general classification of the few symptoms that could be depended upon followed with a discussion as to their relative value. Dr. McKimmie closed his paper with detailed reports of twelve of his most instructive cases, illustrating the different types of this obscure condition.

DISCUSSION.

DR. S. MACCUEN SMITH: At times we operate when symptoms are not quite sufficient, or in absence of many symptoms, basing our judgment on experience, a matter of intuition. Two days ago I saw patient at Germantown Hospital. Had been semi-conscious for two weeks; temperature up to 105°, high for an aural case; under treatment for malaria. Quinin had been administered in large doses; blood examination inconclusive; suddenly developed running ears; patient thought dying; no evidence of mastoid disease; no drooping of canal during lucid moments, no pain over mastoids by pressure or percussion. Exploratory operation suggested and approved. Cortex removed, pus welled out, large sequestrum removed—dura exposed, red and swollen; no pulsation; perisinusitis. Radical mastoid before incising dura—a latent case. Had been well-treated, no one would have suspected it but must have started with ear trouble. Dr. Smith is placing more dependence on the x-ray the past few years. This is a highly specialized subject and requires considerable skill for intelligent interpretation of the plates. Middle-ear involvement from naso-pharynx in practically all cases of primary mastoiditis. In children better drainage afforded by shorter and wider tube; with patulous tube, infection may get to mastoid cells, the drum remaining clear. Sudden rise of temperature more valuable than any other symptom. At Jewish Hospital, a child convalescing from pneumonia, about to get out of bed, on liberal diet, suddenly had temperature of 106°, up for eight to ten hours and as suddenly dropped, tube short and large, fluid under pressure, tympanic cavity evacuated into pharynx —no thought of ear trouble. Normal temperature for eight days, then sudden rise, remaining elevated, tube blocked, spontaneous rupture of drum.

Patient, 65 years; vague symptoms for six months, pain over mastoid would disappear and return at intervals; pain over right side of face; never had ear trouble; found exterior necrosis. Girl, 17 years, pain over mastoids, no evidence of middle-ear disease, treatment for three weeks, no improvement. Mastoidectomy, extensive necrosis, middle-ears not involved; membrane and ossicles not interfered with; large sequestrum removed; presumably primary mastoiditis. Objective tinnitus like ticking of watch, both objective and subjective tinnitus ceased during full breath; synchronous with heart beat; lost when diagnostic tube used; not modified by mastoidectomy; cause—spasmodic contraction of the palatine and pharyngeal muscles. Dr. Alfred Stengel much interested in case; had girl under observation at his office; had mechanical device constructed to observe muscular action. Girl refused to continue visits unless she received conpensation; was lost sight of.

Dr. G. W. Mackenzie: Dr. McKimmie has presented an excellent paper on an important topic which well repays me for attending the meeting. As pointed out by Drs. McKimmie and Smith there are cases of obscure mastoiditis which puzzle us at times as to what line of treatment we should follow. I am reminded of an admonition first advanced by Prof. Alexander of Vienna, and that is "in case of doubt, operate, for in such cases the vast majority show at the operation considerable destruction in the mastoid." This has been borne out by my own experience.

In those frank cases with external swelling and displacement of the auricle with fever, pain, tenderness, etc., occurring in the course of an acute middle-ear suppuration, particularly when these symptoms have appeared suddenly after a few weeks of apparent improvement of the primary middle-ear suppuration, there should be no doubt of the indications for operation. On the other hand, a child with a previously lowered vitality, one who reacts but poorly, may manifest relatively few symptoms. The temperature may be normal or subnormal. In such a case we may not be aware of mastoid complications until graver intracranial complications have developed.

Besides, the anatomical structure of the temporal bone varies considerably, so that in one case the external corticalis may be relatively thin compared with the remaining walls of the middle ear and mastoid cavity; while in another case the opposite conditions may exist.

In still rarer cases we may find a so-called primary mastoid abscess. That is one in which the tympanic membrane is intact. I have found a number of such cases and they are usually bad ones. Careful study of these cases will usually show the membrane of the affected side to be dull (surface uneven); the light reflex is absent. A casual examination of the one ear alone may mislead one, but not so if a careful examination of both ears be made.

I should like to emphasize what the essayist has said concerning facial palsy, dizziness and subjective noises. In all cases presenting one or more of these symptoms I should advise prompt surgical intervention. The dizziness is the signal to go in and give vent to the pus for fear of more serious internal ear involvement that is liable to follow.

I do not consider the observations of spontaneous nystagmus, with the patient looking to the side, of any value, for normal individuals will show more or less physiologic nystagmus when looking to the extreme right or left. Spontaneous nystagmus as a symptom of internal-ear affection is manifested when the patient looks straight ahead. To be sure it will be more pronounced when looking to the side of the nystagmus and less pronounced when looking away from it.

My objection to determining the presence or absence of spontaneous nystagmus of vestibular origin in the side positions is that it is not always so easy to direct the patient's gaze at the same angle on the two eyes, and any variation of angle to the two sides will, in normal individuals, cause a difference in the intensity of the physiologic nystagmus and may easily be interpretated as a pathologic difference.

The caloric test alone is not sufficient upon which to base diagnosis. It is purely a qualitative one and merely tells us whether the inner ear is reactive or not. For a more exact determination of the degree of pathologic over-or-under-irritability we are compelled to make accurate tests by turning and galvanism.

The fistula test is of relative importance only. This fact was brought out forcibly in an able paper on compression and aspiration nystagmus by Alexander and La Salle. For instance a fistula of the labyrinth may give a negative sign in cases of destroyed labyrinth, in cases of reactive labyrinth with excessive patulousness of the Eustachian tube, in cases of foreign bodies and cholesteatoma of large size, etc. On the other hand, the sign is frequently present in cases of acute middle-ear suppuration with the Eustachian tube blocked and membrane intact. Normal individuals may even have vertigo from the use of the Politzer inflation or the pneumatic massage.

What gives the sign increased value is when the patient manifests by aspiration a nystagmus in the opposite direction but of less intensity to that produced by compression.

I thank the essayist for his most instructive paper.

Dr. C. P. Adams reported a case of latent mastoiditis, boy age 10. In 1911 had been operated on three times, twice for post-auricular abscess and later for a simple mastoid. First operation result of scarlet fever. 1912, adenoidectomy.

Present history: November 29, swelling back of ear, like furuncle; periostitis from furuncle in external canal; both incised; one week later fever and drowsiness; admitted to hospital; temperature 106°, leucocytes 25,000; operation following day; sinus communicating with antrum; cleared antrum and middle-ear; exposed lateral sinus; pus under dura wiped out; removed tip. There had been no discharge since previous operation two years ago.

Dr. Eugene L. Vansant said he was indebted to Dr. McKimmie for formulating his views. He heartily agrees with what Dr. Smith has said—sudden rise in temperature favors operation. If these cases were seen through their history they would not appear so vague. They have been in the hands of practitioners not particularly versed in ear trouble.

Dr. Fielding O. Lewis: Patient had frequent tinnitus, nose filled with polyps and disease of middle turbinate, operation followed by relief of symptoms. Came in later with nausea, vertigo and marked tinnitus; ear negative. Wonders if this is a case of latent mastoiditis.

Dr. Benj. D. Parish said we require more definite knowledge as to when to operate. At times too early, then difficulty in healing. Wait for demarcation to wall off certain amount of infection. Wait eight days before you open new area of infection. In chronic cases with urgent symptoms operate at once. Case five years ago: Acute otitis media; paracentesis of drum; healed in five days; dismissed apparently well; one month later fleeting pain; drum normal; lumen narrow on operated side; no tenderness; hearing normal. During day apparently well; in evening, acute pain. Walled off area of pus. Advised exploratory operation; three cells broken down and few drops of viscid pus found. Typical of latent mastoiditis.

Dr. G. W. Coates: He has had the same experience as Dr. McKimmie and Dr. Smith have had with the x-ray. While often it is of the greatest assistance in making a diagram in one of the latent cases, yet it is sometimes misleading, owing to the wrong interpretation being placed on the plate. In the finer x-ray work, in which class that of the mastoid should surely be placed, it takes an expert to read the plates and determine their meaning and even then Dr. Coates has had one or two cases where at operation the exact reverse of the x-ray diagnosis was found.

Cases of latent mastoiditis with severe brain complications frequently give no signs of their presence. One case of the speaker's was that of a waiter, a man of 45 years, who was treated for several weeks for a subacute discharge, with the very vaguest symptoms referable to the mastoid. It was opened, however, and found extensively diseased; the dura of the middle fossa exposed; and as it had a suspicious appearance it was incised and the brain searched, when an abscess the size of a pigeon's egg was located an inch from the surface and evacuated. Quick and uninterrupted recovery took place. There were no symptoms noted referable to brain abscess and few even to the mastoid.

Dr. E. B. Gleason:- An important point is to endeavor to formulate time to operate in acute as well as in chronic cases. Most reliable symptom is sagging of posterior-superior portion of canal. Mastoid beginning during the first week of an acute infection will get well without an operation; beginning between first and second week often will not get well without taking a look; we read of operation becoming less and less as they become more common. Do not wait too long; take lid off the box and see what you find.

Dr. McKimmie (closing): Has reputation of being radical; has seldom operated when not glad he went in. Operate early in presence of any definite symptoms. General surgeons are not radical in this particular field; their cases do well for a time but later must again be operated on and everything acting as a container removed. Extensive disease can go on for weeks, months or years without distinct manifestations of middle-ear disease. Twenty-five cases with no distinct mastoid symptoms were operated on because of one of twelve symptoms or of combination of them.

Dr. McKimmie was very much interested in Dr. Mackenzie's investigations of the labyrinth.

BOOK REVIEWS.

The Catarrhal and Suppurative Diseases of the Accessory Sinuses of the Nose. By Ross Hall Skillern, M. D., Professor of Laryngology, Medico-Chirurgical College; Laryngologist to the Rush Hospital, etc. Pp. 389, illustrated. J. B. Lippincott Company, Philadelphia, 1913. Price, $5.00.

This is the first American text-book published limiting the field exclusively to diseases of the accessory sinuses of the nose. The inspiration of the author has been to present a handbook setting forth in the English language a thorough and detailed account of the nasal accessory sinues, their anatomy, pathology, surgery and therapy, and in this endeavor he seems to have been admirably successful.

While there is much in this volume that reflects the work of such pioneers as Hajek, Luc, Logan-Turner and others, there is every evidence of the serious study and energetic work of the author.

The time is opportune for a limitation of special work and special literature even within our own speciality of oto-laryngology and this volume is a practical and satisfactory evidence of such specialization.

Allgemine Akustik und Mechanik des menschlichen Stimmorgans. (Acoustics and Mechanics of the Voice.) By Dr. Albert Musehold, Berlin. Pp. 134 with 19 photographs of the human larynx on 6 plates, and 53 illustrations in the text. Verlag Julius Springer, Berlin, 1913. Price, M. 10 net.

The prime objection to previously published monographs on the "Acoustics and mechanics of the voice" has been the unnecessary details and presentations of theories, thereby discouraging the busy readers from closer study of this important subject.

This little volume of 134 pages briefly and graphically describes the acoustics and mechanics of the voice in fourteen well-considered chapters. Here may be found a description of physical acoustics and of the theories of wind and reed instruments, the anatomy and physiology of the resonating chambers, the anatomy of the larynx, and the mechanical function of the intrinsic and extrinsic muscles of the vocal apparatus.

Then follow chapters on the general phonetics of speech and song, a consideration of registers, of the form of the epiglottis, excursions of the vocal cords, and a presentation of simple laryngoscopy, stroboscopy and laryngeal photography.

The author draws his final chapters from photographic images taken of the larynx during various types of phonation and in various positions. Nineteen excellent photographs are used to present this phase of the question and corroborate the author's observations.

1913

Index-Medicus and Digest of Oto-Laryngology.

Note:—All titles marked with a * are abstracted under their respective numbers in the second section. All articles marked with a † have appeared as original papers in THE LARYNGOSCOPE and are referred to as such. Abstracts prepared by the collaborators of THE LARYNGOSCOPE are signed as such. Author's abstracts are signed A. A. Abstracts signed ED. have been prepared at the home office of this journal. Those signed Ex. have been published in other journals.

Authors are requested to notify us of errors or omissions.

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III. ACCESSORY SINUSES.

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DIGEST OF OTO-LARYNGOLOGY.

1

Submucous Resection of Nasal Septum with Report of 100 Cases. H. L. AYNESWORTH, *Jour. Ophth. and Oto-Laryngol.*, Feb., 1913, p. 40.
Abstracted in THE LARYNGOSCOPE, July, 1913, p. 800.

4

Cause of Perforation of the Nasal Septum. W. B. CHAMBERLIN, *O. State Med. Jour.*, April, 1913.
Abstracted in THE LARYNGOSCOPE, Nov., 1913, p. 1081.

10

Tuberculous Granuloma of Nasal Septum with Lupus of External Nose. J. H. GUENTZER, Trans. N. Y. Acad. of Med., March 26, 1913.
Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 1023.

11

Septal Resection in Childhood and the Prevention of Perforation and Flapping. HEERMAN, *Ztschr. f. Laryngol.*, Vol. 6, Heft 2, 1913, p. 239.

Heermann feels that resection in children, if not too extensive, can be successfully performed under local anesthesia, and does not interfere with the development of the nose. Septal spines should be removed by the submucous method and not by the saw. ED.

12

Tumors of the Septum. R. H. JOHNSTON.
Original contribution to THE LARYNGOSCOPE, Aug., 1913, p. 834.

14

Submucous Resection. G. C. KNEEDLER, *Pittsburgh Med. Jour.*, July, 1913.

Kneedler has replaced the cartilage in fifty-eight cases of submucous resection without a single loss of cartilage or complication. He removes the cartilage *in toto* with a swivel knife and keeps it in a normal salt solution of 100° until after the operation. Then the cartilage is trimmed with a knife, made straight and inserted between the mucous membrane, and the initial incision closed with a few stitches. The nostrils are then packed. ED.

16

Malignant Tumors of the Vomer. J. LABOURE, *Rev. hebd. de Laryngol.*, Jan. 4, 1913, p. 1.

Nasal and naso-pharyngeal tumors are very often benign,—adenoids in infants and fibroma in adults. But sarcomata or epitheliomata occur at all ages, they develop on the septum, vomer and especially on the ethmoid. Laboure discusses the symptoms and points out four procedures: (1) anterior rhinotomy, (2) total mobilization of the nose, (3) operation through the latero-nasal route according to Moure's technic, or (4) resection of the palate. ED.

19

Complications of Operation for Septal Correction. G. W. MACKENZIE *Jour. A. M. A.*, Sept. 27, 1913, p. 1197.

Mackenzie discusses cocain and epinephrin poisoning, air embolism, incomplete and improper primary incision, adhesions, old and other fractures, perforation, hemorrhage, packing, infection, flattening of nose, hematomas, erysipelas and empyema. ED.

20

Septal Deviations. G. W. MACKENZIE, *Hahnemann Monthly*, Jan., 1913.

Mackenzie considers the two types of septal deviations (developmental and acquired) from the practitioner's point of view and indicates the means of correcting them. ED.

30

Reorganization of the Cartilage of Septum After Submucous Resection. M. A. SSAMOYLENKO, *Ztschr. f. Laryngol.*, Bd. 6, Heft 1, 1913, p. 7.

Abstracted in THE LARYNGOSCOPE, June, 1913, p. 709.

34

Nasal Hemorrhage Following Turbinectomy in a Hemophiliac. L. EMERSON, *Ann. of Otol.*, March, 1913, p. 183.

To control the hemorrhage Emerson used 2,000 units of diphtheria antitoxin, then 20 ccm. of blood serum obtained from the patient's brother, which was injected three times a day. Hemorrhage was greatly reduced. Then 20 ccm. of blood serum obtained from a healthy man was injected three times a day for three days and then once daily for a week. Recovery. Though about a pint of serum, over half from a man not related, was used, no unfavorable symptoms developed. ED.

40

Prevention of Adenoids. W. BRADY, *Med. Rec.*, May 24, 1913, p. 937.

Abstracted in THE LARYNGOSCOPE, Jan., 1914, p. 24.

45

Cardiac Arhythmia Cured by Removal of Adenoid Vegetation. DELNEUVILLE, *Le Scapel*, March 2, 1913.

The author discusses the reflex disorders due to nasal affections apropos of a case in a child of two years, presenting cardiac disturbances. Immediately after adenoid operation all symptoms were ameliorated and after seven months they entirely disappeared. ED.

47

Certain Dangers of Adenoidectomy. W. E. GROVE, *Bull. Johns Hopkins Hosp.*, April, 1913.

Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 1009.

52

Removal of Adenoids and Mouth Breathing. H. M. MCCLANAHAM, *Arch. of Ped.*, Oct., 1913, p. 721.

In 28 of the 52 cases the relief from mouth breathing was either complete or greatly improved; in 21 nasal inspiration was not improved.

In 20 of the 24 cases this was due to anatomic conditions in the superior maxilla. All these cases presented bad coaptation of teeth, mal-development of superior maxilla, vomer, palatine and turbinal bones, with retraction of the mandible. One can determine beforehand whether adenoidectomy will afford relief, and where it will not the parents should be advised to supplement the operation by corrective orthodontia. Ed.

54

Follicular Conjunctivitis; Its Relation to Adenoids. T. E. Oertel, *Ga Med. Assn. Jour.*, Feb., 1913.

Oertel states that there is a causal relation between adenoid hypertrophy of the laryngeal lymphatics and so-called adenoid hypertrophy of the lymphatic follicles of the conjunctiva. He states he is able to make a diagnosis of adenoids and probable hypertrophy of the faucial tonsils by the characteristic granules of the follicular conjunctivitis. Operative removal of the adenoids and hypertrophic faucial tonsils usually promptly causes the follicular conjunctivitis to disappear. Ed.

72

Operations on Nose in Treatment of Headache. Froese, *Deut. Med Wchnschr.*, May 15, 1913.

Abstracted in The Laryngoscope, Dec., 1913, p. 1135.

80

Pathology and Treatment of Nasal Reflex Neurosis Due to Tuberculum Septi. O. Levinstein, *Ztschr. f. Laryngol.*, Vol. 6, Heft 2, 1913, p. 251.

In one case, female of 18 years, sudden redness of left eye and lacrimation complained of lasting five to ten minutes accompanied by tickling in nose and pain between nose and eye. Septal tubercle on left side very sensitive and touching it produced these symptoms. Symptoms subsided on application of cocain. Tubercle cauterized; symptoms disappeared.

Another case complained of frontal headaches. Nose normal except for hyperesthesia of septal tubercle. Cauterization and cure.

Six other cases are reported, in two of which the septum was hyperplastic. Ed.

82

Nerve-reflexes of Nasal Origin. S. Mengoni, *Arch. ital. di Otol.*, No. 5. 1913, p. 376.

Mengoni discusses the various causes and explanations of nasal reflexes and reports two cases: In the case of a man of 27, all asthmatic symptoms subsided after removal of a crista septi. In the case of a child of 13 years, the epilepsy and motor aura disappeared after removal of a hypertrophied middle turbinal. Ed.

93

Nasal Rachitis and Its Relation to Bronchial Asthma. Walb, *Deut. med. Wchnschr.*, Nov. 20, 1913.

Rachitic alterations such as deviations of the septum, formation of spurs, etc., may cause bronchial asthma. Though these conditions are not all of rachitic origin, they may engender the asthma. Their correction may effect a cure. Phosphorus treatment is also effective. Ed.

96

Special Group of Nasal Polypi Originating Within the Accessory Cavities. Georg Avellis, *Ztschr. f. Laryngol.*, Bd. 6, Heft 4, 1913.

While in the vast majority of cases the pathological relationship between nasal polypi and affection of the accessory cavities cannot be clinically ascertained, the writer describes a special kind of nasal polypi that are always associated with polypi of the sinus. When, in the absence of suppuration, there are found in one nasal cavity solitary cystic polypi that are pendulating on their thin pedicle and show great mobility while transillumination reveals a dark antrum, polypi are also simultaneously met with in Highmore's cavity. The Roentgen picture of both cavities may not show any difference whatsoever. As they originate within the antrum, the latter must be opened and all polypi thoroughly removed The canine fossa is usually sensitive to pressure. In such cases evulsion of the nasal polypi is not sufficient. Glogau.

97

So-called Soft and Hard Papillomata of the Nose. A. Brueggemann, *Ztschr. f. Ohrenh.*, Bd. 69, Heft 2, 1913, p. 97.

In classifying papillomata the pathological anatomical findings must be considered. One case of so-called soft papilloma and another of hard papilloma are reported. Ed.

100

Report of a Case of Nasal Polypi Involving the Orbit, Frontal Sinus and Anterior Fossa of the Skull. W. R. Chamberlin.

Original contribution to The Laryngoscope, Oct., 1913, p. 982.

109

Two Unusual Cases of Nasal Polypi. C. W. Kollock, *South. Med. Jour.*, June, 1913.

Kollock reports the cases of two sisters in whom, from a distance of twenty feet, the polypi could be distinctly seen projecting from the noses; closer examination showed the chambers literally stuffed. Thorough removal of large masses under chloroform anesthesia; recurrence within month; Killian operation on younger who was the duller and deafer; opening showed that what should have been the frontal sinus was the cranial cavity. Middle turbinates removed; growths seems to spring from antra and ethmoid cells. No recurrence; hearing and mental condition greatly improved. Similar operation on other sister but with slight recurrence of growths. Ed.

116

Case of Large Choanal Polyp. R F. Ridpath, Trans Phila. Laryngol. Soc., Nov. 18, 1913.

Abstracted in The Laryngoscope, Jan., 1914, p. 78.

119

Brief Pathological Study of Papillomata with Reference to Their Existence Within the Nose. R. B. SCARLETT.

Original contribution to THE LARYNGOSCOPE, July, 1913, p. 765.

121

A Case of Metastatic Hypernephroma Within the Nasal Cavity. E. STORATH, *Ztschr. f. Ohrenheilk.*, No. 2, 1913.

A patient, 58 years of age, was suffering from nasal obstruction. The right inferior turbinate showed a necrotic tumor mass that was easily bleeding. As the tumor recurred after a turbinectomy, Denker's radical operation was performed. The repeated recurrence of the tumor led to several radical operations. The patient finally died from excessive loss of blood. The histological diagnosis at the different operations was as follows: granuloma, carcinoma, perithelioma, carcinoma medullare and finally hypernephroma. The post-mortem revealed an epinephroma of the right kidney and suprarenal gland with metastasis in the lungs, glands and nose.

The writer arrives at the following conclusions: In a case of malign nasal tumor whose growth, extension and decay is suggestive of carcinoma, metastasis of hypernephroma must be thought of, when pulsation and excessive spontaneous hemorrhages are present. The diagnosis must rely upon the clinical picture as the histological examination is frequently misleading. A simultaneous radical operation upon the metastasis and the primary tumor is indicated when the diagnosis is established at an early stage, the general condition of the patient is good and with all probability no other metastasis is present. In all other cases palliative treatment alone is indicated. The failure of the histological examination may be responsible for the supposed rare occurrence of metastatic nasal hypernephroma; many cases of this kind may have been reported as nasal carcinoma. GLOGAU.

127

Naso-pharyngeal Polypi in Young Persons Operated for Adenoids. W. R. BUTT, *Pa. Med. Jour.*, Aug., 1913.

Two cases are reported, one in a boy of 16 years, the other in a boy of 6 years. In both cases there was recurrence after removal. The growths originate in the nose and extend backward into pharynx; they partly resembled nasal polypi but were denser and more fibrous. In the second case there were also nervous symptoms and choreic movements. Because of their great tendency to bleed it is important to make a differential diagnosis prior to operation. ED.

128

Fibro-myxoma of the Naso-pharynx. G. H. COCKS. Trans. N. Y. Acad. of Med., March 26, 1913.

Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 1018.

138

Case of Recurring Fibroma of the Naso-pharnyx. W. N. ROBERTSON, *Australasian Med. Gaz.*, June 7, 1913, p. 541.

Boy of 10 had hard fibroma presenting from under the molar bone and spreading into the pterygo-maxillary fossa. Operative removal. After 15 months large naso-pharyngeal fibroma formed; resection of soft palate, and growth removed; part of growth which extended into the fissura pterygo-maxillaris also removed, by means of traction. Recovery. ED.

141

Cancer of the Naso-pharynx. T. J. THYME and J. S. FRASER, *Edin. Med. Jour.*, Jan., 1913, p. 54.

Woman of 55 years complained of pain on left side of neck, in left ear. Bloody mucus blown from nose, deafness and swelling in glands on left side. Ulcerated infiltration on posterior surface of the soft palate. Examination of gland removed showed it to be carcinomatous.

ED.

143

Lupus of Interior of Nose. ALBANUS, *Arch. f. Laryngol.*, Bd. 27, Heft 2, 1913, p. 189.

The pathogenesis is discussed apropos of several cases, and new explanations given as to its etiology and course. ED.

145

Primary Syphilis of the Nose Treated with "606." M. ARTELLI, *Boll delle Mal. dell'Orecchio*, June, 1913, p. 126.

Abstracted in THE LARYNGOSCOPE, Dec., 1913, p. 1135.

147

Leishmaniosis (Oriental Sore) of the Nasal Mucosa. L. B. BATES, *Jour. A. M. A.*, March 22, 1913, p. 898.

This is the fifth case observed at the Ancon Hospital. Almost the entire helix of the ears and the extensor surfaces of both elbows were involved. Lower half of nose swollen very much and indurated. Free margins of alae nasi deeply ulcerated and covered with hard crusts. On lower edge of four-to-six-inch scar over sternum heavy crusts. Button, size of marble, on right shin; no glandular enlargement. Smears from septum showed many pus-cells and a moderate number of typical leishmaniae tropicae; no acid-fast organisms found. ED.

155

Traumatic Anosmias. CASTEX, *Bull. d'oto-rhino-laryngol.*, July, 1913.

The first case was one of a woman who sustained injury in an automobile accident. After that her olfactory sense was so deficient that once she was unable to detect a strong smell of escaping gas and at another time the burning of her dress. The second case was similar to the first.

The third concerned a cook who, after a fall, remarked that he had lost his sense of taste and smell and constantly had in his nose a smell of rotten fruit or dead bodies.

The author discusses the pathogenesis; the prognosis is always grave

ED.

157

Foreign Body in Naso-pharynx. F. CHAVANNE, *Arch. intern. de Laryngol.*, Jan.-Feb., 1913, p. 153.

Child of 5 years had mouth-piece of trumpet five months in naso-pharyngeal cavity. Removal with Chatellier's adenoid forceps.

158

Nose and Ear in Congenital Deficiency of Sweat Glands. J. CHRIST, *Ztschr. f. Laryngol.*, Bd. 6, Heft 3, 1913, p. 391.

Thus far but five cases of congenital absence of sweat glands are recorded. In three of the cases there were also changes in the auricle and in four ozena was present. The author discusses the etiology of ozena. He agrees with those who hold that ozena is a tropho-neurotic disturbance and that chiefly because of disturbances of inner secretions toxic substances collect which cause the trophic disturbances. ED.

161

Fibrinous Rhinitis. V. DABNEY.

Original contribution to THE LARYNGOSCOPE, March, 1913, p. 208.

162

Naso-Pharynx as a Cause of Disease in Other Parts of the Body. J. DALAND, Trans. Phila. Laryngol. Soc., April 15, 1913.

Abstracted in THE LARYNGOSCOPE, Feb., 1914, p. 156.

164

The Nose and Throat. E. DANZIGER, *N. Y. Med. and Surg. Jour.*, April 19, 1913.

Abstracted in THE LARYNGOSCOPE, Nov., 1913, p. 1081.

178

Bilateral Choanal Atresia in the New-born. A. GOEZ, *Ztschr. f. Ohrenh.*, Bd. 68, Heft 1, 1913, p. 43.

The child was very dyspneic; at age of 4 months the thin-walled bony choanal atresia was opened with a Spiess trephine. Irregularity in subsequent treatment again resulted in atresia; dilations with celluloid bougies which is still regularly done, once a week, to prevent further dyspnea. ED.

184

Hydrorrhea Nasalis, Cured. J. GUTTMAN, Trans. N. Y. Acad. of Med., Dec. 17, 1913.

Abstracted in THE LARYNGOSCOPE, Jan., 1914, p. 66.

186

Etiology of Ozena. G. HOFER, *Wr. klin. Wchnschr.*, June 19, 1913.

Hofer describes the cocco-bacillus fetoidus ozenae, a small, polymorphous bacillus which stains well with the usual aniline colors, is Gram negative, does not liquify gelatin or coagulate milk, induces ammoniacal fermentation of the urine; the cultures emit the typical fetid odor of ozena. This bacillus, he claims, may be found in most cases of ozena in man. Hofer urges further bacteriological examination. ED.

196

Primary Intra-nasal Syphilis. N. Maclay, *Jour. of Laryngol.*, Nov., 1913, p. 586.

Case in man of 35 years who was associated with man known to be suffering from early secondary syphilis. The infection was probably conveyed by the fingers. Ed.

199

Syphilis of the Nose and Throat. H. H. Martin, *South. Med. Jour.*, Jan., 1913.

Abstracted in The Laryngoscope, Oct., 1913, p. 988.

201

The Narrow Nose. R. E. Mercer, *Jour. Mich. State Med. Soc.*, Jan., 1913, p. 18.

The author discusses the various causes, their early prevention and the later operative measures, especially in relation to orthodontia. Ed.

204

Case of Congenital Deformity of Nose. Myles, Trans. N. Y. Acad. of Med., April 23, 1913.

Abstracted in The Laryngoscope, Nov., 1913, p. 1099.

208

The Ozena Problem. R. H. Parker, *Jour. Ophth. and Oto-Laryngol.*, Jan., 1913, p. 8.

Abstracted in The Laryngoscope, May, 1913, p. 584.

210

Ozena, a Contagious Disease; Vaccination. F. Perez and G. Hofer, *Berl. klin. Wchnschr.*, Dec. 29, 1913.

A very large number of cases have been followed up and studied bacteriologically and have established the matter of contagion. The coccobacillus fetidus ozenae, also called bacillus Perez, has been shown approximately to be the sole cause of ozena. A large number of cases of apparent canine contagion have also been collected. Ed.

211

Etiology of Hypertrophic Rhinitis. J. A. Pratt, *Ill. Med. Jour.*, Dec., 1913.

Pratt states that hypertrophy of the nasal tissue is caused by irritation of abnormal secretion, as in sinus disease. In the presence of a normal septum and absence of sinus trouble the cause should be sought in an irritating condition of the blood due to auto-intoxication. When the septal disorders are corrected the turbinal hypertrophy decreases, and no further procedure is necessary. Therefore the author urges conservatism as to turbinal operations Ed.

216

Nose as Source of Infection in Chorea and Acute Rheumatism. M. Senator, *Deut. med. Wchnschr.*, May 8, 1913.

Abstracted in The Laryngoscope, March, 1914, p. 184.

224

Anerobic Organism Associated with Acute Rhinitis. R. Tunnicliff, *Jour. A. M. A.*, June 28, 1913, p. 2033.

Tunnicliff has isolated an organism found usually in large numbers unassociated with other germs in the mucoid discharge in every case of acute rhinitis she has studied. It gradually disappears as the discharge becomes purulent. In cases of accompanying pharyngitis, tonsillitis or bronchitis, the organism was also found in the sputum and mucus of the throat. It was also seen in a case of acute pharyngitis unaccompanied by rhinitis. Carbol-gentian violet and carbol-fuchsin are the best stains. The organisms seem generally mobile and vary in length from 5 to 8 microns and from ⅓ to ½ micron in width. They are strictly anerobic and grow slowly. The author has observed them constantly in the early stages of eighteen cases of acute coryza but she is as yet unprepared to say whether they are the cause of this affection.

232

Nasal Catarrh. W. Wilson, *Practitioner*, Oct., 1913.

For acute coryza Wilson recommends 1. Single pill of morphin (⅙) with little capsicum and ol. meth. pip. 2. After two hours 10 grs. of aspirin. 3. A hot bath. 4. The following morning a purgative dose of magnesium sulphate. An irritant anti-septic menthol-salicylic preparation should be inserted well up into each nostril, but without cocain.

Ed.

234

Atrophic Rhinitis in Its Historical, Etiological and Histological Aspects J. Wright.

Original contribution to The Laryngoscope, June, 1913, p. 641.

237

Electric Treatment of Tuberculosis of the Nose, Throat and Larynx. Albanus, *Berl. klin. Wchnschr.*, Sept. 29, 1913.

Albanus discusses the methods and indications, and states that this therapy is the safest, that very good results are obtained in tuberculous ulcers in the pharynx, and that the surrounding areas of the tuberculosis ulcer or growths thus treated tend to hasten the healing process. Ed.

239

Ether Anesthesia in Nose and Throat Operations. R. E. Apperly and S. Hastings, *Lancet*, Sept. 20, 1913.

A modification of the junker apparatus is used. Oxid of nitrogen is used before the ether is administered. Ed.

244

Removal of Adenoids by Direct Inspection. J. C. Beck, *Ann. of Otol.*, June, 1913, p. 273.

A small rubber catheter is inserted through the nostrils and the ends brought out through the mouth, for control of hemorrhage after removal of faucial tonsils and for direct inspection by traction on the ends of the catheter at the time of the adenoid removal, by the assistant. When there is adenoid growth around tube or when the artery forceps are applied to posterior naso-pharyngeal wall for excessive post-operative hemorrhage, this method is especially recommended. ED.

246

Electrolytic Treatment of Rhinophyma. BORDIER, *Presse med.*, July 12, 1913.

The author reports excellent results with this treatment. The destroyed tissue blackens, shrivels and becomes detached in about two weeks. Two lobes of the rhinophyma can be removed at one sitting. During the period of repair, antiseptic local baths are employed. If small elevations remain after the electrolytic treatment they can easily be removed by diathermy, a fine metallic electrode being used. Then the nasal surface remains smooth, the cicatricial tissue flexible and the color normal. ED

258

Plastic Cartilage of Ala Nasi. C. CANESTRO, *Arch. f. Laryngol.*, Bd. 27, Heft 1, 1913.

Canestro successfully transplanted a piece of rib into nose to relieve sinking in of the cartilage of ala nasi due to trauma. ED.

261

Cases of Nasal Deformity Corrected by Transplantation of Bone. W. W. CARTER, Trans. N. Y. Acad. of Med., Oct. 22, 1913.

Abstracted in THE LARYNGOSCOPE, Dec., 1913, p. 1165.

262

Operations for Correction of Deformities of Nose. W. W. CARTER, Trans. Phila. Laryngol. Soc., Oct. 21, 1913.

Abstracted in THE LARYNGOSCOPE, Jan., 1914, p. 74.

267

Treatment of Rhinophyma by Radium. DEGRAIS, *Arch. d'Electr. Med.*, May 25, 1913.

Two of the cases cited belonged to the glandular variety of rhinophyma in which the glands are voluminous and the other was of the elephantiac variety in which dermic sclerosis with vascular dilation predominates. All three cases improved under the influence of radium which was applied for forty-eight hours, during four nights of twelve hours each. The applications were made on the side of the nose by the Wickham's "cross-fire" method, four series of radiations being given at six weeks intervals. ED.

274

Autogenous Vaccines in the Treatment of Hay-fever. P. M. FARRINGTON. Original contribution to THE LARYNGOSCOPE, Dec., 1913, p. 1133.

277

Approach to Hypophysis Through Anterior Cranial Fossa. C. H. Frazier, *Ann. of Surg.*, Feb., 1913, p. 145.

An osteoplastic flap is reflected from the right frontal region in the removal of the supra-orbital ridge with a portion of the roof of the orbit, later to be replaced, and in rongeuring away what remains of the roof of the orbit down to the optic foramen. The orbital contents are displaced downwards and outwards, and the frontal lobe elevated until a view of the optic nerve is obtained. Then a short incision is made into the dura which lays bare the cavity of the sella turcica. The rest of the operation depends on the kind of lesion present. This method is indicated, according to the author, in all cases where the orifice of the sella is enlarged and where there is reason to believe the tumor is encroaching upon the brain. Ed.

278

Tumor of Hypophysis Partially Removed by Transfrontal Method. C. H. Frazier and J. H. Lloyd, *Jour. A. M. A.*, Nov. 1, 1913, p. 1626.

The authors report a case operated on by this method with excellent results. Ed.

284

Indications for the Correction of Deviations of the Nasal Septum by the Gleason Operation. E. B. Gleason.

Original contribution to The Laryngoscope, Dec., 1913, p. 1129.

291

Hiss Leucocyte Extract in Complications of Nasal and Aural Surgery. W. H. Haskin.

Original contribution to The Laryngoscope, Oct., 1913, p. 972.

295

Vaccine Therapy of Ozena. G. Hofer and K. Kopler, *Wr. klin. Wchnschr.*, Oct. 16, 1913.

Ten cases of ozena have been treated by injection of Perez's coccobacillus fetidus ozenae with excellent results after about eight weeks. Even after the first injection the secretion in the nose and pharynx begins to clear up and become fluid, then it and the crusts diminish, and soon the crusts entirely disappear. The fetor also disappears. Eczema of long standing gets well and the dry pharyngitis and the voice improve. Ed.

296

Pre-nasal Opening of the Sella Turcica. Rudolf Hoffmann, *Ztschr. f. Ohrenh.*, Bd. 69, Heft 2, 1913.

Pen surgery, while always a totally dangerous procedure, may at times be of highly suggestive value. The originator of an idea, a book or any other work can always learn by his critic. This article is full of suggestions. The writer, apparently, did not as yet perform a per-nasal exposure of the sella turcica, but he tells us how he would do it in a given case. Hirsch's method of approaching the sphenoidal cavity between the submucous sac of the resected septum appeals most to the writer. He would, of course, change the method radically. In order to avoid infection and retention the writer advocates the removal of the entire sac of mucous lining whereby excellent drainage of the sphenoidal cavities would be established and tamponade could be avoided. The writer, furthermore, objects to Hirsch's incision of the wall of the cyst and excochleation of a solid tumor at the sella turcica. He advocates the use of the exploratory needle. In case of cyst, the latter would be evacuated and thus decompression established. In case of a solid tumor, the operation should limit itself to the removal of the adjoining sphenoidal walls. The hypophysis may then develop into the sphenoidal cavity and the pressure symptoms will disappear. Removal of the hypophyseal tumor is only indicated in acromegalia, where it bulges already into the sphenoidal cavity. It should then be removed by means of the galvano-caustic snare. The writer recommends Cushing's sublabial method to those not very skillful in intra-nasal surgery.

The Roentgen picture is considered by the writer of high diagnostic value. He succeeded in getting excellent pictures of the sphenoidal cavities by applying towards the posterior pharyngeal wall a plate that was fixated in position by means of the teeth. The exposure was a vertical one. GLOGAU.

298

Restoration of Nose by Pendunculated Flap of Skin from Over the Sternum. E. HOLLAENDER. *Berl. klin. Wchnschr.*, Jan. 20, 1913.

Hollaender uses the Italian method and takes a pedunculated flap from the chest over the sternum. The head is bent forward and immobilized but the arm is not immobilized. He feels that the skin from the chest is better fitted for restoration of the nose than that of arm and there is less danger of necrosis. ED.

303

Efficient and Easily Removable Nasal Packing. E. F. INGALS, *Ill. Med. Jour.*, March, 1913, p. 249.

Ingals uses a rubber sponge fashioned to fit the nares (about 2 mm. thicker than the extreme width of the shrunken nares). A strong linen thread is passed through the nares from above downward, 1.5 cm. back of the proximal end and its ends tied in a loop 4 cm. long, by which the sponge may be withdrawn. A second thread is tied through to prevent tearing apart on removal. A strong thread may be passed through the sponge 4 cm. in front of its posterior end and fastened to it and then carried forward through the opposite side and united with the first end in a loop. If this loop be pulled after the packing is inserted the sponge will be doubled back on itself and the choanæ very tightly packed. A few whiffs of chloroform are given when the pack is removed. ED.

304

Successful Treatment of Atrophic Rhinitis and Ozena. L. JACOBS, *N. Y. Med. Jour.*, May 31, 1913.

Abstracted in THE LARYNGOSCOPE, March, 1914, p. 182.

306

Simple Submucous Ledge Operation. R. H. Johnston.

Original contribution to The Laryngoscope, Sept., 1913, p. 928.

311

Plastic Operations on the Nose. F. Koch, *Berl. klin. Wchnschr.*, Sept., 1913; and *Intern. med. Monatschr.*, No. 10, 1913.

Three cases are reported. One case, an abnormally large nose, was diminished through a wedge-shaped incision. In the second there was a very pronounced indentation at the root of the nose. In this case periosteal bone transplantation from the tibia was performed. In the third case an entirely new nose had to be formed, because of destruction due to long-standing lupus. Transplantation from tibia to right upper arm and thence to nose according to the Italian method. Later a septum was formed by free transplantation. All operations were performed under local anesthesia. Ed.

315

Rational Treatment of Nasal Hydrorrhea. Lermoyez, *Press Med.*, May 28, 1913.

Sedentary life, over-eating and excessive intellectual activity are always accountable for the arthritic diathesis. The nasal hydrorrhea is usually a vicarious syndrome pointing to some disturbance in the metabolism of the organic fluids. Rational treatment should aim to diminish toxic waste production and promote renal activity. Rest in bed and a milk diet have proved very beneficial. As local treatment, hot air insufflations suffice. Ed.

317

Rhinoplasty with Finger. C. A. MacWilliams.

Abstracted in The Laryngoscope, May, 1913, p. 629.

318

Modern Treatment of Ozena. G. Mahu, *Presse Med.*, Jan. 4, 1913, p. 9.

Abstracted in The Laryngoscope, Aug., 1913, p. 837.

320

Correction of Nasal Deformities. G. M. Marshall, *Jour. A. M. A.*, Jan. 18, 1913, and *Pa. Med. Jour.*, Aug., 1913.

Marshall considers only disfiguring deformities, most of which are combined with serious nasal obstruction. The operation described has been performed in thiry-three cases. The technic is detailed. This procedure does not restore lost bones but radically and simply corrects misplaced ones, straightens the buckled septum, gives free nasal breathing and affords ample room for further removal of septal spurs or thickenings if necessary. Ed.

321

Opening of the Lacrimal Sac Through the Nose. O. Mayer, *Wr. klin. Wchnschr.*, Dec. 11, 1913.

Mayer has operated on five cases by this method. The technic is difficult and requires careful anesthetizing but restores the physiological tear-flow, cures inflammation of the lacrimal sac, does away with a skin incision and with the necessity of operating on the lacrimal glands. Ed.

324

Hemorrhage in Naso-Pharynx. A. Meyer, *Berl. klin. Wchnschr.*, Dec. 22, 1913.

The author reviews the various methods of arresting hemorrhage in the naso-pharynx and points out their defects. Escat's tamponade is, in his opinion, the only reliable one. It may be left *in situ* as long as forty-eight hours if necessary. Ed.

328

Further Experience with Method for Prevention of Operation in Submucous Resection. R. M. Nelson, *Ga. Med. Assn. Jour.*, July, 1913.

Nelson in this paper again recommends the technic which he and Dr. Murray evolved and which he has successfully tried out in 136 submucous operations. Ed.

331

"Coagulin Kocher-Fonio," a New Hemostatic. H. Obermueller, *Muench. med. Wchnschr.*, No. 51, 1913.

This preparation is said to prevent the hemorrhage occurring after use of cocain or adrenalin in rhinological surgery. Ed.

333

Technic and After-treatment of Submucous Resection Without Packing. L. Ostrom.

Original contribution to The Laryngoscope, Sept., 1913, p. 913.

338

New Treatment of Ozena. O. Rabasa, *Rev. esp. de Laryngol.*, No. 2, 1913.

Oxygen under pressure is applied to the mucosa by means of an especially constructed canula. The oxygen is an antiseptic as well as a cleanser, since it also removes the crusts. It acts as a massage and revives the mucosa. Ed.

353

Treatment of Secondary Hemorrhage Following Operations on the Nose and Throat. P. S. Stout, Trans. Phila. Laryngol. Soc., March 18, 1913.

Abstracted in The Laryngoscope, Dec., 1913, p. 1174.

356

Intra-nasal Operations and Their Relation to Hearing. S. W. Thurber.

Original contribution to The Laryngoscope, Dec., 1913, p. 1141.

361

Paraffin Nasal Bridge Building—Technic and Report of Case. E. L. Vansant.

Original contribution to The Laryngoscope, Sept., 1913, p. 908.

366

Access to Lacrimal Sac Through Nose. J. M. West, *Berl. klin. Wchnschr.*, May 19, 1913; and *Arch. f. Laryngol.*, Bd. 27, Heft 2-3, 1913.

The nasal chamber is cocainized, the inferior turbinal opened, the ascending process of the superior maxillary and lacrimal bone chiselled away and the distend sac exposed, This establishes ample communication by the natural routes between the eye and nose above the inferior turbinal which is left intact and physiological conditions are re-established. In 90 per cent of his cases this procedure was very effective.

Ed.

368

New and Efficient Treatment of Atrophic Rhinitis. K. K. Wheelock. Original contribution to The Laryngoscope, Oct., 1913, p. 986.

374

Artificial Nose. F. Zinsser, *Muench. med. Wchnschr.*, Dec. 9, 1913.

Zinsser regards Hennig's idea of making an artificial nose from a soft material as a great advance in this line. He gives two illustrations "before and after," which confirm the excellent result obtainable. A plaster cast is made over a normal nose and melted gelatin, tinted a flesh tint, is poured into the cast. When it has hardened it is taken out of the cast, holes are made for the nostrils, and the edges are softened with a hot spatula. The artificial nose is then fitted over the patient's deformed nose, and is held in place with a little varnish or mucilage. The edges of the prothesis are made to run out into a thin sheet all around, and this sheet is patted down on the skin with a hot cloth, and a little powder dusted on the edges. Being comparatively plastic, the gelatin nose yields and moves with the play of the face, giving a particularly life-like look to the new nose. The patients soon learn to make a new prothesis for themselves as needed. The whole procedure is extremely simple, the materials are very inexpensive and the cosmetic effect unusually good.—*Ex.*

381

Epithelioma of the Soft Palate. B. Douglas, Trans. N. Y. Acad. of Med., 1913.

Abstracted in The Laryngoscope, June, 1913, p. 717.

383

Anatomy and Treatment of Cleft Palate. F. W. Goyder, *Brit. Jour. of Surg.*, Vol. 1, 1913, p. 259.

When combined with hare-lip, simultaneous operation on the lip and palate is inadvisable on account of the extra time necessary for their adequate performance. Early preliminary operation on the lip is indicated. The whole cleft should be closed as soon as it can be done without preventing the production of a physiologically useful hard and especially soft palate. In a patient of 3 years, a median is usually preferable to a flap operation. Under 3 years, without a complete cleft, no operation should be done on the palate until, following the preliminary closure of the lip, the alveolar margins of the cleft have become nearly or completely in contact. As a rule it is impossible to fashion a soft palate sufficiently long in a patient over 12 years; better results can be obtained with a modern type of mechanical appliance. Under 12 years it is best to close the cleft as speech is much better. The respective merits of the Lane and Langenbeck methods are discussed. Ed.

385

Cleft Palate and Hare-lip. S. L. McCurdy, *Pittsburg Med. Jour.*, July, 1913.

The case reported was a unilateral complete hare-lip, cleft arch and cleft palate. A modified Langenbeck hare-lip operation was performed on the lip. The third tooth was extracted from the cleft; the alveolar process fractured into the right anterior naris with a chisel through the tooth socket. Then the inter-maxillary bone was forced around so as to close up the cleft. The free ends of the process were freshened and the bone held together by wiring. Iron wire was used. No operation was done on the roof of the mouth since the left nasal cavity was not open and there was no palate floor on the other side. Ed.

391

Cleft Palate. J. F. Oechsner, *N. Orleans Med. and Surg. Jour.*, April, 1913.

Oeschner feels that the best time for operation is before the child begins to talk. He prefers the Langenbeck operation; when one side of the cleft projects beyond the other they are brought together with silver wire suture after the method proposed by Brophy, resecting a portion of the inter-maxillary bone when it projects. The author prefers doing the operation in two stages. Ed.

400

Enlarged Tonsils and Adenoids and Their Treatment with Lymphatic Gland Extract. H. T. Ashby, *Brit. Med. Jour.*, May 31, 1913, p. 1159.

Ashby holds that adenoid and tonsillar hypertrophy is an attempt on the part of Nature to augment the lymphoid tissue of the body and supply the deficiency existing in the other lymphoid tissue. He points out the frequent recurrence of adenoids if removed before the age of 5 years and argues that this is a second attempt on the part of Nature to supply the body with the lymphoid secretion it needs at this age. Therefore if this lymphatic gland extract be artificially supplied the results should be satisfactory, and they have been in thirty cases. Snoring and noises in breathing have disappeared and the tonsils have decreased in size. Ed.

402

Broncho-pulmonary Complications Following Adenoidectomy and Tonsillectomy. G. Bassim, These de Paris, 1913.

The thesis is divided into six chapters: 1. Complications of adenoidectomy and tonsillectomy in general. 2. Infectious complications of these operations. 3. Broncho-pneumonic complications. 4. The author's own observations. 5. Pathogenesis of broncho-pulmonary complications. 6. Prophylactic measures. Ed.

409

Function of the Tonsils. A. Bramson, *Novoe v. Medetsiny, March*, 1913.

Bramson studies the relation of the tonsils to the lymphatic system and shows that the defensive function of the tonsil is very slight. Ed.

414

Tuberculosis of the Pharyngeal Tonsils in Adults. A. Brueggemann. *Ztschr. f. Ohrenh.*, Bd. 68, Heft 1, 1913, p. 29.

The author has recently observed three cases of tuberculosis of the palatine tonsils in middle-aged persons who appeared vigorous and not at all tubercular. Two were definitely primary lesions; the third secondary to a pulmonary and laryngeal affection. Ed.

416

Peculiar Syphilitic Lesion of Palatal Tonsil. Citelli, *Arch., intern. de Laryngol.*, July-Aug., 1913.

This lesion affects both tonsils and consists of a fungus-like enlargement projecting beyond the pillars. The surface of the lesion is smooth and slightly rose-colored. Two cases are reported in which this manifestation was the only symptom. Mercurial treatment effected a cure. Ed.

417

Results in a Series of Cases of Tonsillectomy Three or Four Years After Operation. J. P. Clark, Trans. Am. L. Assn., 1913, p. 43.

The author holds that severe hemorrhage after tonsillectomy is rare. Improvement in general health took place after operation and the operated children were probably less susceptible to disease. In four cases the uvula was accidentally cut off but no bad syptoms followed. Remnants of tonsillar tissue cause no untoward symptoms. The ordinary voice is unaffected by tonsillectomy. Enlarged cervical glands are often due to tonsillar tissue, though carious teeth may cause cervical adenitis. All the author's cases were under 15 years of age. Ed.

423

Tonsillitis Following Use of Staphylococcus Spray. C. M. Davis, *Jour., A. M. A.*, Aug. 9, 1913, p. 393.

The patient was instructed to spray his nose and throat three times a day with a pure culture in sterile normal salt solution. Symptoms of tonsillitis on second day; smears showed staphylococci; on the next day diphtheria bacilli also found. Five days later the diphtheria bacilli had disappeared but there were still numerous staphylococci and some pneumococci and streptococci present. The tonsillitis was much more severe subjectively than the diphtheria. Ed.

440

Plea for the Entire Removal of Enlarged and Diseased Tonsils. B. C. Gile, *Pa. Med. Jour.*, June, 1913.

Abstracted in The Laryngoscope, Sept., 1913, p. 935.

443

Indication for the Relative Values of Tonsillotomy and Tonsillectomy. J. L. Goodale, *Boston Med. and Surg. Jour.*, Oct. 2, 1913, p. 485.

Goodale concludes: (1) It has been demonstrated that complete removal of the tonsil is followed by harmful effects upon the general system. (2) Tonsillotomy involves less trauma than does tonsillectomy, but in the latter the method of removal is of primary importance, a sharp dissection down to the tonsillar artery, with snaring of vessels, giving the least amount of inflammatory action. (3) Tonsillectomy shows a larger percentage of septic complications, due both to the greater trauma usually occasioned and also to the large number of septic conditions in which of late years an operation is undertaken. (4) In tonsillectomy cicatricial occlusion of the lacunar orifices is frequent and may lead to an intensification of the original chronic inflammation. Tonsillectomy in unskilled hands may be followed by marked and injurious distortion, but with good technics should have no other alteration than an approximation and occasionally a partial fusion of the pillars. (5) Simple hyperplasia if obstructive or favoring catarrhal conditions and if persistent may be sufficiently treated by a tonsillotomy, especially in children. (6) Recurrent local infections, or general infections having their origin in the tonsils require tonsillectomy as soon as a favorable opportunity for operation arrives. Here tonsillotomy may prove inadequate. (7) The systemic ill-effects of chronic tonsillitis may be increased by a tonsillotomy. Complete removal is here preferable to a partial one, although mild cases of chronic inflammation may be sufficiently relieved by appropriate treatment without excision. Ed.

444

Some Pathological Reasons for the Removal of the Tonsils. L. N. Grosvenor, *Jour. Lancet*, Dec. 1, 1913.

Grosvenor holds that the faucial tonsils are a frequent source of infection and disease and that not the large protruding tonsils are the most dangerous but the small, submerged ones,—those bound down by old inflammatory adhesions. He, therefore, advocates tonsillectomy and not tonsillotomy. Ed.

445

The Tonsil—A Vestigial Respiratory Organ. J. A. Hagemann, *Med. Rec.*, Oct. 25, 1913, p. 756.

Hagemann offers the hypothesis that tonsils are probably vestigial organs of respiration, a modified form of gills or branchiae, surviving from the piscine and amphibious periods of man's descent, but not deciduous. In young children, especially, the tonsil is dotted with mouths of crypts whose cavities are lined with epithelium and from this the author deduces the conclusion that this arrangement was to present a greater surface to the water, thereby giving additional opportunity to absorb necessary oxygen. Ed.

453

Presentation of a Tonsillolith. R. H. Huvelle, Trans. N. Y. Acad. of Med., Feb. 26, 1913.

Abstracted in The Laryngoscope, July, 1913, p. 793.

455

Relation of Faucial Tonsils to Pulmonary Tuberculosis. E. F. Ingals, *Jour. A. M. A.*, July 12, 1913.

In a small proportion of cases the tonsils seem primarily involved in the process of pulmonary tuberculosis but usually the changes in these glands are secondary and the bacilli are apparently absorbed from the sputum. Pulmonary tuberculosis is now considered a systemic infection of aerogenous origin; when the bacilli are taken up by the lymphatics they are poured into the general circulation. It is very unusual for the bronchial glands to be primarily involved in pulmonary tuberculosis.

Ed.

461

Ratio of White Blood Corpuscles in Tonsils and Their Diapedesis. M. N. Klatschko, Dissertation—Koenigsberg, 1913.

Diapedesis only occurs in the presence of an irritation,—toxic, inflammatory, or chemical; it is not permanent and ceases after the acute stage of the inflammation has disappeared. From the tonsils there is a permanent diapedesis of the lymphocytes. Diapedesis of plasma cells is not an active but a passive process. The surface of the tonsils is covered with a bacterial flora. Cocci and bacilli are also very profuse in the lumen of their cysts. The pathogenesis of the micro-organisms is diverse; some are very virulent, while others are avirulent. Ed.

462

Acute Follicular Tonsillitis. G. C. Kneedler, *Pittsburg Med. Jour.*, Oct., 1913.

Kneedler briefly describes the course of acute follicular tonsillitis and details the differentiating points betwen it and diphtheria. He also indicates the therapy. Ed.

466

Pharyngeal Tonsils. B. D. LaForce, *Iowa State Med. Soc. Jour.*, May, 1913.

LaForce discusses the diagnostic signs, the clinical history, the technic of operation, and its possible complications. Ed.

472

Syphilitic Lesion of the Tonsil and Soft Palate. F. O. Lewis, Trans. Phila. Laryngol. Soc., Nov. 18, 1913.

Abstracted in The Laryngoscope, Jan., 1914, p. 79.

474

The Offending Tonsil. W. C. Lyle, *Ga. Med. Assn. Jour.*, July, 1913.

Lyle refutes the statements made by Mackenzie in his paper on the "Massacre of the tonsil." Ed.

475

Massacre of the Tonsil. J. N. Mackenzie, *Prog. med. Belge*, Feb. 1, 1913; and *Arch. ital. di Laringol.*, April 7, 1913.

Abstracted in The Laryngoscope, April, 1913, p. 435.

484

Papillomatous Intra-cryptic Lesions of the Tonsil. P. Nadal, *Rev. hebd. de Laryngol.*, March 22, 1913, p. 341.

In man of 32 years, tonsil removed for simple hypertrophy; histologic examination revealed papillomatous changes in the crypts. Ed.

486

Enucleation of Tonsils and Removal of Adenoids Under Gas Anesthesia. J. F. O'Malley, *Brit. Med. Jour.*, April 5, 1913, p. 699.

Abstracted in The Laryngoscope, Oct., 1913, p. 1007.

497

Report of a Case of Phlegmon Starting as a Peri-tonsillar Abscess and Extending Downward as Far as the Second Ring of the Trachea. Geo. L. Richards.

Original contribution to The Laryngoscope, Aug., 1913, p. 835.

498

Complications of the Operations for Removal of Tonsils. C. W. Richardson.

Original contribution to The Laryngoscope, June, 1913, p. 667.

505

Typhoid Bacilli on the Tonsils. F. and L. Schuetz, *Deut. med. Wchnschr.*, March 6, 1913.

Seventy-one tests were made of thirty-seven patients, of whom 23 had unmistakable typhoid, but in no instance could the typhoid bacilli be isolated. Ed.

508

Results of Tonsillectomy Under Local Anesthesia. B. De F. Sheedy, *Chicago Med. Recorder*, July, 1913.

Sheedy examined 100 patients who had tonsillectomy performed three to ten months previously and found the following variety of deformities: 1. The pillars on both sides had disappeared with the soft palate tightened to such an extent that the opening at the naso-pharynx was narrowed. 2. The pillars on both sides had grown together. 3. The anterior pillar had wholly disappeared with a large amount of cicatricial tissue deposited on the posterior pillar. He then describes his method of overcoming these difficulties; he has used it for two years and has found it entirely satisfactory in 90 per cent of the cases. Ed.

511

Anomalous Internal Carotid Artery and its Clinical Significance in Operations on the Tonsils. P. G. Skillern, *Jour. A. M. A.*, Jan. 18, 1913, p. 172.

The author describes a specimen of anomalous sigmoid tortuosity of the cervical portion of the internal carotid artery found in the Anatomical Laboratory of the University of Pennsylvania. The artery over-reached from its normal position of about 2.5 cm. behind and to the outer side of the left tonsil over toward the organ. He quotes others who have noticed this anomaly and says that the practical point it teaches is to "stop, look and listen" before operating on any part of the pharynx, since this anomaly may be present in any given case. If it is present, "preliminary ligature of the internal carotid of the upper border of the thyroid cartilage should be made. If doubt arises as to whether the anomalous artery is the ascending pharyngeal or the internal carotid, the common carotid artery should be occluded in the same situation with a Matas metal clip. If the artery be discovered and damaged during an operation, control of the situation may be effected by compressing the common carotid artery against Chassaignac's tubercle (the prominent anterior tubercle of the transverse process of the sixth cervical vertebra), and ligation then performed."

522

Necessity for Removing Tonsil in Treating Tuberculous Lymph-nodes in Neck. E. Trautmann, *Muench. med. Wchnschr.*, April 22, 1913.

In girl of 11 with healthy lungs and good teeth, large tubercular abscess in glands of left side of neck opened. A fistula remained. Later deep-seated caseous glands removed, and on following day apparently healthy left tonsil which on microscopic examination showed typical epitheloid tubercle cells with giant cells. The tonsil was the primary focus of infection and the author urges the complete removal of the corresponding tonsil in cases of tuberculosis of the neck glands to avoid constant dissemination of the primary turbercular focus to new glands through the lymph passages. Ed.

523

Anginal Tablets in Tonsillitis. F. Vesely, *Casopis ceskych lekaur*, No. 10, 1913.

In two cases of tonsillitis, one in a girl of 8 years, and the other in a boy of 11 years, the use of anginal tablets resulted in a cure within two days. Ed.

535

Malignant Disease of Tongue and Mouth. R. Abbe, *Med. Rec.*, March 15, 1913, p. 461.

Abstracted in The Laryngoscope, Dec., 1913, p. 1138.

536

Curability of Cancer of the Tongue. P. Baudet, *Gaz. des Hop.*, Aug., 1913.

According to the author, the average duration of life in cancer of the tongue is fourteen months, while with operation it is from twenty to thirty months, with a possibility of complete cure. The author recommends the following procedures: 1. Cancer of the tip or anterior third of the margin, limited to the tongue, Whitehead's operation, preceded by the glandular removal. 2. Middle third of margin, without involvement of gingivo-lingual fold or floor of mouth, Whitehead's operation. 3. Posterior third, not involving floor of mouth, Whitehead's operation. 4. Where the whole tongue is involved but not the floor of the mouth, he insists on the importance of preserving the mylohyoids. 5. Where the floor of the mouth is involved, the growth should either not be touched or should be removed in one block with the tongue, floor of mouth, and contents of both submaxillary and carotid regions, by Kocher's suprahyoid route. Any part of the jaw to which the growth is adherent should be removed. 6. In cancer of the base of the tongue spreading to pillars of fauces, tonsil, epiglottis or the pharyngeal walls he advises against operation. 7. In inoperable growths the author quotes with approval the advice of Kuester to perform ligature of the external carotids, and states that while the growth is retarded but little, there is less tendency to hemorrhage, and the fetid secretion is improved. Ed.

539

Co-existence of Syphilis and Cancer of the Tongue. Chifolian and Duraeux, *Ann. des Mal. ven.*, No. 5, 1913.

The authors report a case in a man, aged 44 years, in whom tertiary lesions evolved during the existence of a malignant growth of the tongue. Several injections of neosalvarsan were given but they seemed to stimulate the development of the lingual cancer. Death resulted. Ed.

548

Affections of the Tongue. F. Henke, *Ztschr. f. Laryngol.*, Bd. 6, Heft 1, 1913, p. 19.

Case 1: Woman, aged 60 years. Primary tuberculosis of the tongue. Formerly always healthy; no history of lues or of tuberculosis; internal organs sound; Wassermann negative. On tip of tongue, next to median line embedded nodule, the size of a bean. Microscopic examination revealed tuberculosis.

Case 2: Child with primary lues of tongue. Papules also on right tonsil. Ed.

552

Carcinoma of the Tongue Following Epidemolysis Bullosa (Dystrophic Form). Klausner, *Arch. f. Dermatol.*, Bd. 116, Heft 1, 1913.

Abstracted in The Laryngoscope, Oct., 1913, p. 981.

554

Case of Fibro-angioma of the Tongue. D. Mac Farlan.

Original contribution to The Laryngoscope, Feb., 1913, p. 131.

555

Actinomycosis of the Tongue Cured by Radium. Magnus, *Med Klinik*, No. 14, 1913.

Woman of 56 years had, just posterior to tip of tongue, hard growth, size of cherry which protruded mucosa of upper and lower surface of the tongue. Under local anesthesia, incision which relieved 1 ccm. of yellow pus containing many actinomycosis glands. Tamponment. After three days no reduction of infiltration. Then for three consecutive days use of Roentgen rays which resulted in disappearance of growth, closure of wound with only slight infiltration of edges. ED.

562

Periodical Soreness of the Tongue and Gums. H. STERN, *Arch. of Diag.*, Oct., 1913.

Stern holds that periodical soreness of the tongue, gums and palate is the most reliable of the early symptoms of pernicious anemia. In two cases of true pernicious anemia and in one still under observation, this symptom was found. ED.

571

Morphology of Blood in Epidemic Parotitis. J. H. BARACH, *Arch. of Int. Med.*, Dec., 1913.

As soon as the disease has manifested itself, even before the development of the parotitis, leukopenia is present; when the parotitis is fully developed the leukopenia is marked, the polynuclears are decreased and the mononuclears increased. The eosinophiles are scarcely apparent during the process of the disease. ED.

581

Two Pathognomonic Symptoms of Pharyngeal Paresthesia. R. BOTEY, *Arch. intern. de Laryngol.*, May-June, 1913, p. 780.

If the affection be organic, painting the hypo-pharynx with cocain lessens the symptoms; if it be nervous, this heightens them. In paresthesia pressure on the anterior wall of the larynx increases the discomfit but does not produce symptoms in organic affection. Then also in nervous affections the reflex excitability is decreased. ED.

592

Differentiation of Phlegmonous Angina and Diphtheria. G. CHARLIER, *Hygiea*, June, 1913.

Charlier reports on 110 cases of phlegmonous angina and points out the danger of mistaking diphtheria for ordinary tonsillitis or quinsy, and incising. Five fatal cases are recorded in which this was done. History of preceding attacks of peritonsillitis, age of patients, of known contact with diphtheria aid in differentiating. Tenderness of swollen parts of throat is early present in peritonsillitis but not in diphtheria. ED.

593

Relative Frequency of Cranio-pharyngeal Canal in Infants and Young People. CITELLI, *Ann. des Mal. de l'Oreille*, No. 4, 1913, p. 338.

This is only a preliminary report in which the author tries to show that there is a direct circulatory connection between the hypophysis and that part of the base of the skull which covers the naso-pharynx. ED.

595

Vincent's Angina. G. H. COCKS.

Original contribution to THE LARYNGOSCOPE, Sept., 1913, p. 929.

617

Primary Pharyngeal Sporotrichosis. H. GOUGEROT AND P. QUELLIEN, *Paris Med.*, Aug. 9, 1913.

This case is the first one reported of primary pharyngeal sporotrichosis without cutaneous lesions. A woman of 51 showed extensive ulceration of the pharynx and general emaciation. After unsuccessful treatment for syphilis and tuberculosis mycotic disease was suspected. Potassium iodid internally and locally resulted in speedy cure. The organism responsible for the disturbance was found to be the sporotrichum Beurmanni. ED.

640

Prevention of Mouth-breathing. W. W. JAMES, *Clin. Jour.*, Nov. 5, 1913.

The apparatus (a wire frame over which sheet-rubber is stretched) is placed inside the lips and cheeks resting on outer surface of the teeth and gums. When it is in position mouth-breathing is entirely impossible. The apparatus can be quickly removed and there is no danger of swallowing it. ED.

642

Membranous Sore Throat. S. A. KELLER, *Jour.-Lancet*, Oct. 15, 1913.

Keller briefly discusses septic sore throat, and describes its clinical symptoms and its differentiation from syphilitic and tubercular infections, from pharyngo-mycosis, malignant disease and herpes. He states that sore throats characterized by the presence of a membrane have a varied etiology and should be classified from a bacteriologic standpoint. ED.

650

Abnormal Sensations in the Pharynx. T. B. LAYTON, *Practitioner*, Oct., 1913.

Foreign bodies or small local lesions, with or without general lowering of the body-resistance may cause these sensations. Each case calls for individual therapy and should be carefully handled or they may lead to serious disease. ED.

651

Eczema of the Buccal Commissure a Manifestation of Syphilis. LAZZARRAGA, *Gac. med. del Sur*, April, 1913.

Lazzarraga calls attention to the observations of Findlay and Ferguson and reports two of his own cases, in which the Wassermann was negative, so that the localization was pathognomonic. ED.

659

Differential Diagnosis Between Vincent's Angina and Primary Syphilitic Lesions of the Tonsil. R. LEVY.

Original contribution to THE LARYNGOSCOPE, June, 1913, p. 676.

662

Unusual Polypoid Tumor of Pharynx. LIEBAULT and CELLES, *Jour. de Med. de Bordeaux*, Jan. 12, 1913.

Red, smooth tumor which presented from the depths of the pharynx when the patient retched or choked. It was suspended on the right side of pharyngeal wall from a long, thin peduncle. Removal according to Moure s technic. ED.

669

Atresia of the Pharynx; Operation; Polypoid Degeneration of Mucosa; Recovery With Good Function. JOHN E. MACKENTY, Trans. N. Y. Acad. of Med., 1913.

Abstracted in THE LARYNGOSCOPE, June, 1913, p. 713.

703

Fatal Hemorrhage from the Throat. J. D. ROLLESTON, *Brit. Jour. Children's Dis.*, Feb., 1913.

Child said to be suffering from diphtheria admitted to hospital. No history of bleeding in family. Healthy previous to attack of measles five weeks ago. Husky voice, sore throat, with croupy cough, neck glands swollen. On fifth day sudden cough with profuse gush of blood. Marked cyanosis and death within five minutes. Successive cultures from nose and throat did not reveal diphtheria bacilli, only cocci. Autopsy: abscess cavities in both tonsils; ulceration of uvula, soft palate, epiglottis, frenum epiglottiditis, vallecula and ary-epiglottidean folds. Deep ulceration of laryngo-pharynx and superficial ulcers above right vocal cord.

ED.

732

Tissue Necrosis and Arterial Hemorrhage Due to Erosion Following Use of Old Novocain Solution in Infiltration Anesthesia. VON GAZA, *Deut. med. Wchnschr.*, No. 16, 1913, p. 746.

Injection of 2 per cent solution of novocain, several weeks old, prior to removing teeth. Sever edema of face and tissue necrosis. Necrotic portion of gum fell away, pronounced hemorrhage from major palatine artery on two occasions, maxillary necrosis and palatal perforation into nasal cavity which healed only after removal of a small sequestrum. The author feels that bacteria of some sort must have grown profusely in the solution and their toxins produced the tissue necrosis. He warns against the use of old solutions. ED.

735

Hydatid of Submaxillary Gland. H. F. B. WALKER, *Brit. med. Jour.*, Jan. 18, 1913.

For last six years slowly growing, pedunculated tumor posterior to left ramus of the maxilla in girl. The growth was mobile, fluctuating, and arched into mouth. The bone was not involved. Upon operation it was found to be located in submaxillary gland; a piece of normal gland tissue was attached to the removed tumor. The cyst contained 79 ccm. of clear fluid, scolices, secondary cyst. For several days there was a saliva secretion from the wound. Recovery. . ED.

740

Case of Diffuse Lympho-sarcoma of the Pharynx. J. WILHEIM, *Orvosi Hetilap*, No. 24, 1913.

Tumor the size of a small apple which caused dysphagia. Cricho-tracheotomy. Langenbeck's periodic maxillary resection under local anesthesia. ED.

741

Lingual and Oral Mucous Membrane Disturbances in Pernicious Anemia. F. WISE, *Jour. Cut. Dis.*, Feb., 1913.

Very often the earliest sign of a pernicious anemia is a stomatitis and glossitis; this lends weight to the theory that the disease may be due to oral sepsis. The characteristic feature of the stomatitis is its periodicity. It resists local treatment and appears and disappears without apparent cause. ED.

755

Simple and Satisfactory Method for Removing Adenoids and Tonsils. W. W. CARTER, *Med. Rec.*, May 31, 1913, p. 986.

The author uses a spiral tenaculum to engage the tonsil and pull it toward the median line; with a separator he cuts through the plica and mucous membrane along the margin of the pillars. The tonsil is pried out from its bed, using the separator as a lever. An Eve's snare completes the removal. With one sweep of a Gottstein curette, adenoids are removed and the naso-pharynx wiped out by gauze wrapped around the finger. ED.

757

Treatment of Vincent's Angina. J. CITRON, *Berl. klin. Wchnschr.*, April 7, 1913.

Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 971.

758

Sluder Method of Tonsillectomy. A. M. CORWIN, *Ill. Med. Jour.*, Jan., 1913, p. 48.

Abstracted in THE LARYNGOSCOPE, Dec., 1913, p. 1138.

759

Tonsillectomy by the Sluder Method. A. M. CORWIN, *Jour. A. M. A.*, Sept. 27, 1913, p. 1243.

In this paper the author refutes Dr. Freer's objections to the Sluder operation. Corwin feels that this operation is applicable in all except very rare cases where incomplete measures or inflammatory processes have left the parts found in a network of rigid scars with little tonsil tissue present. The author prefers gas and oxygen anesthesia. Several points of technic are emphasized. ED.

767

Eight Years of Chloroform Anesthesia in Nose and Throat Surgery CHARLES P. GRAYSON.

Original contribution to THE LARYNGOSCOPE, Jan., 1913, p. 61.

776

Practically Bloodless Tonsillectomy. H. B. HITZ, *Wis. Med. Jour.*, Nov., 1913.

Hitz strongly advocates radical tonsillar removal, in a hospital, and states that 75 per cent of his operations were practically bloodless because of the technic, which he details. ED.

780

Pedunculated Transplantation of Facial Vein for Stenson's Duct. J. JIANU, *Wr. klin. Rundschau*, No. 6, 1913.

Pedunculated transplantation is preferred to the free because it insures greater vitality to the transplanted vessel. In Jianu case the results have been satisfactory for two years. ED.

786

Tonsillectomy with the Aurelius-Rethl Expressor. A. LENGYEL, *Arch f. Laryngol.*, Bd. 27, Heft 2, 1913. p. 349.

By this method injury to the palatine arch is avoided, hemorrhage does not take place, and the operation is quicker. ED.

788

Radio-active Substances in Treatment of Morbid Conditions in Mouth and Teeth. M. LEVY, *Deut. med. Wchnschr.*, June 5, 1913.

Abstracted in THE LARYNGOSCOPE, Jan., 1914. p. 24.

792

Simplified Technic for the Removal of the Faucial Tonsils. L. F. LONO. Original contribution to THE LARYNGOSCOPE, Aug., 1913, p. 838.

796

Technical Remarks on Tonsillectomy. H. MARSCHIK, *Monatschr. f. Ohrenh.*, Heft 1, 1913, p. 80.

Abstracted in THE LARYNGOSCOPE, June, 1913, p. 682.

814

Local Treatment of Vincent's Angina with Salvarsan. J. D. ROLLESTON, *Practitioner*, Dec., 1913.

Rolleston reports one case of Vincent's angina successfully treated with local application of salvarsan and states that this therapy is simple, safe and sure. ED.

829

Unusual Bullet Wound of Frontal Sinus. K. BULKLEY, *Jour. A. M. A.*, Aug. 9, 1913, p. 413.

Girl of 18 years was shot while examining an old pistol. Exploration under ether anesthesia showed the point of entrance through the anterior wall of the frontal sinus. In the posterior wall there was a similar but somewhat larger opening, irregular with comminuted edges. Numerous hairs were wedged in the broken fragments. In the center of this posterior opening on the uninjured dura mater was found a flattened lead bullet of about .32 caliber. This was removed together with all loose bone-fragments and hair, the wound partially closed, and a loose gauze drain inserted. Recovery. The interest in this case lies in the fact that both bony walls of the frontal sinus were completely penetrated without injury to the dura. The good results were due to the prompt exploration. Ed.

835

Two Cases of Frontal Sinusitis With Bone Complications. W. S. Keir, *Lancet*, March 8, 1913.

Case 1: Girl of 19 years. Because of the pain the left frontal sinus was opened and drained. No pus was found. After one week sinus reopened because of acute pain and fever. Slight osteomyelitis, which soon disappeared.

Case 2: Man of 42 years. Chronic frontal sinusitis. At operation, erosion of anterior wall and floor of sinus discovered. Bacillus pyocyaneus was only micro-organism found in pus. Ed.

836

Sinusitis Frontalis Acuta and Iridocykliltis Acuta; Remarks on the Recognition of Rhinogenous Eye Affections. E. Kellner, *Monatschr. f. Ohrenh.*, Heft 2, 1913, p. 237.

Abstracted in The Laryngoscope, July, 1913, p. 786.

839

Chronic Frontal Sinusitis with External Rupture. F. O. Lewis, Trans. Phila. Laryngol. Soc., Nov. 18, 1913.

Abstracted in The Laryngoscope, Jan., 1914, p. 80.

848

Suppuration of the Frontal Sinuses. K. Von Lang, *Beitr. z. klin. Chir.*, Vol. 84, No. 1, 1913.

Frontal sinus suppurations originate in the nose, frequently as the result of coryza or influenza, rarely of neighboring syphilitic or tubercular processes or trauma. The author discusses the course of the disease and its diagnosis and treatment. Ed.

850

Cancer of Frontal Sinus. K. Wisotzko, *Deut. Ztschr. f. Chir.*, Sept., 1913.

Carcinoma of the maxillary sinus is frequent but that of the frontal very rare. The author's case was a man of 54 years. At autopsy a large portion of the dural surface was found involved and the falx major had cancerous infiltrations. It was a case of primary frontal carcinoma; the first symptom was the anterior and downward displacement of the frontal wall and pronounced swelling of the eyelid.

In such cases operative treatment has not been, thus far, successful. Ed.

856

Specimens Showing Probable Etiological Relation of Sphenoidal Sinuses to Some Cases of Tic Douloureaux. William H. Haskin, Trans. N. Y. Acad. of Med., 1913.

Abstracted in The Laryngoscope, June, 1913, p. 710.

857

Foreign Body (Instrument) in the Sphenoid Sinus. I. M. HELLER.
Original contribution to THE LARYNGOSCOPE, May, 1913, p. 618.

869

Ethmoid Abscess Caused by the Bacillus Fusiformis of Plaut-Vincent. F. H. BRANET.
Original contribution to THE LARYNGOSCOPE, Dec., 1913, p. 1136.

870

Sarcoma of the Ethmoid. P. DETAY, These de Montpellier, 1913.

After discussing the anatomy of the ethmoid and the etiology of ethmoidal sarcoma the author reports four cases, one in a child 12 years (round-celled sarcoma); two cases of fibro-sarcoma in patients of 35 and 56 years respectively; and the fourth patient, 19 years old, had an orbito-nasal sarcoma of ethmoid origin with optic atrophy. Three were operated by Mouret and the fourth by Riche. ED.

871

Diseased Conditions of Ethmoidal Region. F. EMBERY, Trans. Phila. Laryngol. Soc., March 18, 1913.
Abstracted in THE LARYNGOSCOPE, Dec., 1913, p. 1172.

872

Osteoma of the Ethmoid Operated According to Moure's Method. E ESCAT AND J. BONZOMS, *Rev. hebd. de Laryngol.*, March 1, 1913, p. 241.

About 125 of these cases are reported in the literature. In this case the patient, 25 years old, complained chiefly of plugging up of the nose and headaches. An osteoma was removed after two trials (by Moure's method); the first trial failed because the instruments were not strong enough. ED.

873

Closed Empyema of Ethmoid Labyrinth Unrecognized for Several Years Due to Closure of Anterior Nares. W. FREUDENTHAL, Trans. N. Y. Acad. of Med., March 26, 1913.
Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 1020.

881

Applied Anatomy and Intra-nasal Surgery of the Ethmoidal Labyrinth. H. P. MOSHER.
Original contribution to THE LARYNGOSCOPE, Sept., 1913, p. 881.

898

Endothelioma of the Maxillary Sinus. A. CAMINATI, *Gaz. degli Osped.* March, 1913.

Clinical and histological study of a case observed in a boy of 14 years. Histologically the tumor proved to be an angio-endothelioma. ED

899

Stone in Antrum of Highmore. N. B. Carson, *Interstate Med. Jour.*, March, 1913, p. 242.

Patient, man, aged 67 years. Symptoms: thickening of cheek, exophthalmus of left eye, downward arching of hard palate. Operation revealed tumor in antrum; the anterior wall of the antrum was destroyed. Just over the alveolar border there was a hard, irregularly formed stone about the size of the terminal phalanx of the little finger. The whole superior maxilla and the eye removed. Stone filled with light yellow, hard, granular mass mostly composed of calcium phosphate. The tumor was a pavement-cell carcinoma. Ed.

903

Method of Closing a Sinus Between the Antrum of Highmore and the Mouth. L. W. Dean, *Jour. A. M. A.*, Nov. 1, 1913, p. 1613.

The method recommended by Dean has proved successful in 95 per cent of his cases. Ed.

909

Case of Sarcoma of the Antrum. B. Douglass, Trans. N. Y. Acad. of Med., 1913.

Abstracted in The Laryngoscope, June, 1913, p. 717.

914

Treatment of Chronic Suppuration of Antrum of Highmore With New Instrument. E. B. Gleason, *Pa. Med. Jour.*, April, 1913, and *Monthly Cyclop.*, July, 1913.

Abstracted in The Laryngoscope, Dec., 1913, p. 1172.

915

Diagnostic and Therapeutic Value of Needle Puncture of the Maxillary Sinus. H. M. Goddard, *Pa. Med. Jour.*, April, 1913.

After discussing the technic, value and untoward results, Goddard concludes: (1) that exploratory needle puncture beneath the inferior turbinate is by far the best means of diagnosing antral empyema; (2) that it is a valuable therapeutic measure in all cases of acute suppuration and in many cases of chronic suppuration; and (4) that it is practically safe and should be used in every case of suspected sinus disease. Ed.

927

The Intra-nasal Opening of the Maxillary Cavity. Oswald Levinstein, *Ztschr. f. Laryngol.*, Bd. 6, Heft 3, 1913.

The writer's method is a combination of the best technics in vogue. By submucous elevation he separates the nasal bony wall of the antrum from its muco-periosteum; the latter is then incised and pushed towards the septum. The medial wall of the antrum is then removed special care being taken not to leave a separating ridge between the antrum and the floor of the nose. The maxillary cavity can then be thoroughly inspected and probed. If curetting of the mucous lining of the antrum seems to be indicated, radical operation through the canine fossa must be resorted to. The method described is a conservative one, both as regards the antrum and the nasal structures. (While it is already apparent that this method is too conservative when radical treatment of the antrum is indicated, further experience with it will have to prove whether it is not too radical in those cases that may be cured by a real conservative method.—Ref.) GLOGAU.

938

Unusual Case of Osteoma of the Superior Maxilla. M. D. RICHIE. Original contribution to THE LARYNGOSCOPE, Feb., 1913, p. 112

976

Some Remote Effects of Chronic Sinus Suppuration. R. C. LYNCH, *New Orleans Med. and Surg. Jour.*, July, 1913.

Abstracted in THE LARYNGOSCOPE, Nov., 1913, p. 1077.

980

Ophthalmological Diagnosis of Diseases of Accessory Sinuses, Especially of Posterior. L. MEYER, *Med. Klinik*, No. 1, 1913.

The author discusses the relation between the accessory sinuses and the porus opticus. He holds that enlargement of the blind-spot is an earlier and more valuable diagnostic symptom of accessory sinus affection than central scotoma. ED.

987

Inflammatory Affections of Nasal Accessory Sinuses in Children. S. OPPENHEIMER, *Arch. of Ped.*, Jan., 1913, p. 1.

Abstracted in THE LARYNGOSCOPE, June, 1913, p. 678.

991

Sinus Involvement in Nasal Conditions. F. G. REYNOLDS, *N. W. Med.*, June, 1913.

Reynolds points out the large number of cases of nasal affections in which the sinuses are involved as shown by post-mortem findings. Reynolds further points out the relation between sinal, ocular, respiratory, ear and general systemic disorders. Diagnosis and treatment are discussed and five cases reported. ED.

995

Spirochete Associated with Infections of Accessory Sinuses. R. TUNNICLIFF, *Jour. A. M. A.*, June 7, 1913.

This spirochete may be colored with phenic gentian violet. In four cases it was found in connection with sinus disease; in the fifth, with severe acute rhinitis. Its significance has not been determined. ED.

996

Hyperplastic Inflammation of the Mucosa of the Accessory Sinuses. UFFENORDE, *Med. Klinik*, No. 9, 1913.

The author reports a case in which he had to perform a radical operation because of the frequent recurrence of polypi removed endo-nasally. The results of the operation, even from a cosmetic point of view, were excellent. ED.

1003

Modern History of Accessory Nasal Sinus Disease. J. WRIGHT. Original contribution to THE LARYNGOSCOPE, Feb., 1913, p. 81.

1004

Endo-cranial Complications Following Chronic Accessory Sinus Suppuration. W. ZEMANN, *Ztschr. f. Laryngol.*, Bd. 6, Heft 4, 1913, p. 545.

Man of 37 years suffered for ten years with catarrh and occluded nares. Lately severe frontal headaches, fever, apathy and fistulous bursting of pus into upper eyelid. Killian operation on left side. Cleansing of frontal and anterior ethmoid cells. Nevertheless temperature rose and stupor increased. Radical operation of right frontal sinus. Mucosa thickened and polypoid; small portion of anterior wall of frontal sinus rough and of yellow-grey color. Left facial paralysis; paralysis of left hypoglossus and left side of body. Death. Autopsy: Necrosis of roof of orbit and ethmoid; meningitis; on upper surface of right anterior frontal pole cortical abscess; in back of these in the region of the frontal fold, two communicating abscesses with smooth pronounced abscess membrane.

ED.

1012

Treatment of Nasal Sinus Suppuration by Ionization. J. C. G. MACNAB, *Jour. of Laryngol.*, Dec., 1913, p. 642.

MacNab reports a number of absolute cures by ionization in the most unpromising cases and describes the various technics in the different cases. ED.

1018

Value of Roentgen Ray as Diagnostic Aid in Diseases of Accessory Nasal Cavities. R. H. PARKER, *I. State Med. Soc.*, Sept., 1913.

Parker illustrates the paper with three radiograms, one showing normal sinuses, one empyema of the right antrum and the third empyema of the right frontal and maxillary sinus, and urges the use of the x-ray as a supplement to other diagnostic measures. ED.

1020

New Method of Preparing Microscopic Specimens of Sinuses of Face, Especially in Infancy. C. A. TORRIGIANI, *Arch. intern. de Laryngol.*, March-April, 1913, p. 464.

The stages of the process are as follows: 1. Fixation and hardening in formalin; for the skull of a child of 10 years, for instance, for from four to six days. 2. Washing for one day under running water. 3. Decalcification in a 5 per cent nitric acid solution, for twenty to sixty days. 4. Again washing under running water for one day. 5. Washing in solution of 5 per cent alum for from one to two days. 6. Embedding in gelatin. 7. Cooling. 8. Hardening for five to ten days in 10 per cent formalin.

ED.

1022

Edema of the Glottis. G. K. COLLIER, *N. Y. Med. Jour.*, May 3, 1913. Abstracted in THE LARYNGOSCOPE, Aug., 1913, p. 824.

1029

Primary Carcinoma of the Epiglottis. E. Mayer, *Arch. f. Laryngol.*, Bd. 27, Heft 3, 1913, p. 588.

Mayer reviews the cases cited in the literature and shows how very rare primary carcinoma of the epiglottis is, especially when limited to that part of the larynx. Up to the present time the treatment has consisted of surgical intervention or the use of radium and the x-ray. Two cases are reported:

Case 1: Diagnosis, probable malignant disease of the epiglottis. Subsequent history,—primary epithelioma of the larynx; metastasis, laryngectomy; death.

Case 2: Man, aged 64. Slight difficulty in swallowing, especially cold liquids. General condition good; edema of uvula, numerous small white spots on tongue and inner surface of cheek; larynx normal. Diagnosis, leukoplakia buccalis. No history of lues. Temporary improvement after treatment, but after seven months, dysphagia, naso-pharyngeal catarrh, and white patches. After three weeks deep ulceration surrounded by thickened mass on laryngeal surface of epiglottis which pathological examination proved to be cylindrical-celled carcimona. Wassermann strongly positive. Patient anesthetized, suspension laryngoscope placed in position and epiglottis removed. Excessive bleeding on following day checked by sprays of peroxid of hydrogen and ice. Before patient left hospital salvarsan also administered. Cure. Ed.

1030

Large Cyst of the Epiglottis. H. Moulton.
Original contribution to The Laryngoscope, Dec., 1913, p. 1139.

1033

Two Cases of Subglottic Tumor. R. H. Woods, *Dublin Med. Jour.*, June, 1913; and *Jour. of Laryngol.*, Oct., 1913.

Case 1: Boy of 11 years with granulation mass on right tracheal wall just over the bifurcation. The growth was removed bronchoscopically, in three sittings. The glands at the bifurcations were enlarged but gradually decreased in size. No definite diagnosis could be made by microscopic diagnosis.

Case 2: Man of 40 years with tumor under the cords apparently filling lumen of trachea. Removal by external method which showed it to present from the posterior surface of the cricoid cartilage. Diagnosis, carcinoma. Ed.

1034

Lesions of a Special Interest for the Localization of Aphasic Disorders. La S. Archambault, *Albany Med. Ann.*, March, 1913, p. 125.

Archambault describes two cases clinical and pathologically and concludes: (1) that a lesion of the third left frontal convolution in a right-handed person does not necessarily cause motor aphasia; and (2) that a lesion of the left lenticular region in a right-handed individual is sufficient to produce a marked permanent motor aphasia. Ed.

1038

Standardization of Vocal Training from the Teacher's Standpoint. H. Brown.

Original contribution to The Laryngoscope, Jan., 1913, p. 21.

1039

Stuttering and Its Treatment. F. A. Bryant, *Med. Rec.*, Oct. 4, 1913.

Abstracted in The Laryngoscope, Nov., 1913, p. 1096.

1043

Causes of Intermittency in Stuttering. Chervin, *Semaine med.*, May 28, 1913, p. 253.

Chervin says that the frequent disappearance of the stuttering for days or weeks is emotional in origin and treatment should be directed toward training the patient to resist and conquer tendencies to emotional perturbations. Ed.

1044

Cinematography of the Vocal Cords and Their Laryngeal Annexes. Chevroton and Vles, *Bull. Med.*, April 5, 1913.

As the results of experiments made by the authors in the laboratory of Prof. Franck, a technic has been developed by which films of laryngeal images can be obtained. Ed.

1045

Disturbances in Phonation and Articulation in Atrophin Poisoning. J. Cisler, *Sbornik lek.*, Nos. 1-2, 1913; and *Ztschr. f. Laryngol.*, Bd. 6, Heft 3, 1913.

Cisler ascertained with the laryngoscope that such disturbances existed in a dog poisoned with atrophin. Ed.

1046

Congenital Duplication of Vocal Cords. S. Citelli, *Boll. delle Mal. dell' Orecchio*, Sept., 1913; and *Arch. f. Laryngol.*, Bd. 27, Heft 3, 1913.

Citelli claims priority for the recognition of this condition. He states that slight forms are to be found in 55 per cent of normal human larynges. Ed.

1061

Speech-reading, a Guide for Self-instruction. S. Fuller, *Volta Rev.*, Sept., 1913, p. 253.

In this article the author presents a plan by which one partially or wholly deaf may intelligently study his own mouth either with or without the guidance of a teacher and thus acquire the ability to read the lips of others. The article is profusely illustrated. Ed.

1069

Result of 18 Years of Research Work on Voice Production and Analysis. W. Hallock and F. S. Muckey.

Original contribution to The Laryngoscope, Jan., 1913, p. 5.

1071

Need of a Standard in Voice Production. W. J. HENDERSON.
Original contribution to THE LARYNGOSCOPE, Jan., 1913, p. 1.

1072

Unilateral Affection of the Vocal Cord. P. HEYMANN, *Arch. intern. de Laryngol.*, Jan.-Feb., 1913, p. 29.

Heymann points out that monochorditis may be of catarrhal origin and that a diagnosis can only be made after very careful examination and observation. Great caution must be exercised since this condition may be cancerous, luetic or tubercular. ED.

1080

Report of a Case of Aphthongia. F. V. LAURENT.
Original contribution to THE LARYNGOSCOPE, Jan., 1913, p. 59.

1083

Defects of Speech; Stammering; Dyslalia. G. HUDSON-MAKUEN.
Original contribution to THE LARYNGOSCOPE, March, 1913, p. 227.

1086

Correction of Impediments of Speech in Our Public Schools. H. F. MCBEATH, *Jour. A. M. A.*, Nov. 1, 1913, p. 1610.

McBeath severely criticises the indifference with which stammering is regarded. It can easily be corrected in the public schools. Treatment consists in perfecting in the order named the acts of respiration, phonation and articulation. ED.

1089

Vocal Art Science from the Standpoint of Use and Abuse of the Voice. F. E. MILLER.
Original contribution to THE LARYNGOSCOPE, Jan., 1913, p. 29.

1092

Human and Animal Voice in Their Relation to the Anatomical Structure of the Larynx. J. NEMAI, *Arch. f. Laryngol.*, Bd. 27, Heft 3, 1913; and *Orvosi Hetilap*, No. 21, 1913.

The glottis of animals can never be entirely closed; there is always a hiatus intervocalis glottis present. These anatomical conditions account for the circumstance that the animal voice is never truly musical. Animals usually also keep their mouths open while vocalizing. The fact that the hiatus intervocalis is absent and the glottis can be entirely closed accounts for the musical possibilities of the human voice. ED.

1113

Whisper and Conversational Voice in Their Relation to Each Other. J. VEIS, *Arch. f. Ohrenh.*, Bd. 90, Heft 3, 1913, p. 200.

The following conclusions are reached: 1. The test of hearing by means of the conversational form in comparison with the parallel test in a whisper is important in cases of marked impairment of hearing (whisper less than 1 cm.), in reference to diagnosis, therapy and prognosis; a test with the whispered voice alone gives no adequate determination of the actual hearing power. 2. In cases of otosclerosis and in many cases of past suppurative inflammation of the middle-ear the conversation tone was heard at a not much greater distance than the whisper, while in cases of labyrinthine deafness and in the exudative process of middle-ear affection the conversational tone was heard much better than the whisper. 3. In this latter case there is more promise of improvement in the general hearing under treatment. 4. Improvement in hearing after middle-ear inflation is usually in regard to conversational tone, that for whisper being only slightly or not at all improved. Ed.

1118

Vibrations of the Vocal Cords. F. Wethlo, *Stimme*, Aug., 1913, p. 329.

This is a technical and mechanical study of the vibration of the cords with a description of a new apparatus for this study. Ed.

1122

Edema of Larynx and the Micro-biologic Relations. L. Bar, *Rev. hebd. de Laryngol.*, Aug. 9, 1913; and *Ann. des Mal. de l'Oreille*, No. 7, 1913.

Two cases are reported whose symptoms simulated erysipelatous laryngitis—initial chill, series of slight chills, submaxillary adenopathy with localized pain, febrile conditions with sudden defervescence, oscillations in temperature, and attacks of edematous inflammations. Bacteriological examination showed pneumococci, staphylococci, streptococci, and spirallo. Antiseptic methods were of more therapeutic avail than use of serum. Ed.

1124

Diagnosis and Treatment of Syphilitic Laryngitis. J. C. Beck, *Jour. A. M. A.*, Sept. 27, 1913.

The various types are enumerated and described, and their relative frequency discussed. Salvarsan is successful in the early treatment. Since this form of laryngitis is not usually painful, local treatment, as resection of chancre, calomel or iodol insufflations, mild solutions of silver nitrate, etc., may be employed. Tracheotomy, incisions of bands, resection of cicatrices with dilatation and, in cases of severe perichondritis causing obstruction, laryngostomy may be indicated. Ed.

1137

Report of Case of Ulceration of Larynx. J. H. Bryan, *Ann. of Otol.*, Sept., 1913, p. 811.

Man, aged 42 years, had attack of typhoid and was apparently convalescing when he was thought to take cold and developed a slight laryngitis, and author was called. Laryngoscopic examination showed extensive swelling of right ventricular band which overlapped and partially obscured the corresponding true vocal cord; deep ulceration on under-surface of the ventricular band extending to free margin of true cord. Both arytenoid cartilages were markedly swollen and posteriorly were bathed in a thin, grayish secretion. Left vocal cord moved somewhat on inspiration, leaving a narrowed glottis. Tracheotomy advised; later in day emergency tracheotomy performed but patient died. At autopsy both arytenoid cartilages were seen completely detached and lying loose in their capsules. This case shows the need of making a regular and systematic examination of the upper air passages, especially of larynx, in all cases of typhoid. Ed.

1141

Recognition of Early Changes in the Larynx in Tuberculosis. W. E. Casselberry, *Jour. A. M. A.*, Nov. 15, 1913, p. 1789.

One of the earliest and most distinctive of the initial tubercular changes in the larynx and one which may proceed by years any more active development is the mammillated hyperplasia commencing at or near the subglottic portion of the base of the vocal process and gradually marked by a furrow in the vocal angle. At this stage the prognosis is still hopeful. Ed.

1143

Congenital Laryngeal Stridor. Castellini, *Prat. oto-rino-laringoiatrica.* Bd. 13, No. 9, 1913.

This affection, which is also known as respiratory spasm or chronic glottic spasm in children, manifests itself by a peculiar inspiratory and expiratory noise similar to snoring. It is continual and is accompanied by a slight inspiratory sinking in of the basis of the thorax. The author used bronchoscopy under narcosis on such children and found malformations of the larynx, clefts of glottis, malformations of epiglottis or other anatomical changes. Castellini discusses the pathologenesis, diagnosis, prognosis and therapy of these cases. Ed.

1144

Epithelioma of Larynx. T. R. Chambers, Trans. N. Y. Acad. of Med., Oct. 22, 1913.

Abstracted in The Laryngoscope, Dec., 1913, p. 1162.

1147

Epidermolysis Bullosa Hereditaria of the Mucosa. R. A. Coffin, Trans. Am. L. Assn., 1913, p. 277.

Coffin reviews the literature of this disease and reports a case in a man of 37 years. The prognosis is favorable as far as life is concerned but the prospect of cure is practically impossible at the present time, although one or two cases have disappeared later in life. Arsenic has been the most successful remedv applied. The differential diagnosis is discussed. Ed.

1148

Early Laryngology in Philadelphia. J. Solis-Cohen, Trans. Phila. Laryngol. Soc., Nov. 18, 1913.

Abstracted in The Laryngoscope, Jan., 1914, p. 80.

1149

Pharyngo-laryngeal Psychopathy. F. J. Collet. *Ann. des Mal. de l'Oreilc.* No. 7, 1913.

Collet describes a case of nervous aphonia in a choreic boy of 11; one of difficult deglutition in a neurasthenic woman of 50; a nervous cough in a boy of 17 who afterward developed melancholia; paralysis of the palate in a neuropathic elderly woman, and a case of extreme dyspnea in a physician of 50 who passed into a condition of manic-depressive insanity. Collet emphasizes the necessity of extremely careful examination in such cases to exclude organic disease.—*Ex.*

1152

Laryngectomy for Cancer. G. W. CRILE, *Ann. of Surg.*, Aug., 1913. Abstracted in THE LARYNGOSCOPE, Dec., 1913, p. 1184.

1154

Comminuted Fracture of the Larynx. D. B. DELAVAN, *Med. Rec.*, Nov. 22, 1913, p. 927.

Delavan records this case of a man who made a living principally by the exhibition of his throat at various medical schools. He had been hanged by a band of outlaws but struggled so desperately that he broke the rope, not, however, without causing a multiple fracture of his larynx. His loud stertorous breathing again attracted the bandits who returned and stabbed him in the abdomen, across the face, over the forehead and straight across the throat between the thyroid and cricoid cartilages, dividing the crico-thyroid membrane. He lay exposed until next morning when he was found severely frost-bitten. He recovered. ED.

1156

End-results of Two Cases of Laryngeal Carcinomata on Whom an Early External, Conservative Operation Was Performed. DELLA VEDOVA and L. CASTELLANI, *Ztschr. f. Laryngol.*, Bd. 6, Heft 1, 1913, p. 65.

Case 1: Man of 48 years. Hoarseness and cough for last eight months. Epithelioma of left vocal cord was revealed laryngoscopically and verified microscopically. Laryngo-fissure, removal of diseased vocal cord, and tracheotomy under local anesthesia. Recovery after four years. Voice satisfactory due to formation of a connective-tissue band at the site of former vocal cord.

Case 2: Man of 60 years; hoarseness since one year. Tumor of right vocal cord which histological examination proved to be epithelioma. Laryngo-fissure and removal of cord under local anesthesia. Recovery.

ED.

1158

Diagnosis and Treatment of Laryngeal Tuberculosis. F. L. DENNIS, *Jour. A. M. A.*, Sept. 27, 1913, p. 1219.

Dennis concludes as follows: 1. Sufferers from tuberculosis should have their throats examined early and often, and persistent vigorous treatment should be instituted at the beginning of the trouble in the larynx. 2. Proper attention to the general condition is one of prime importance. 3. Surgical intervention in appropriate cases offers by far the best prospects of permanent relief and not infrequently is of much value as a palliative measure. ED.

1163

Histology of the Larynx. Espinosa, Inaugural Dissertation, Bern, 1913.

By his elaborate study Espinosa explains disturbance of the voice, secretion and respiration due to laryngeal causes. Ed.

1167

Larynx of Mammals. V. Fruehwald, *Monatschr. f. Ohrenh.*, Heft 2, 1913, p. 149.

In a previously published paper by Albrecht a description of the larynges of the tapir, rhinoceros and elephant was omitted. This description is supplied by Fruehwald in his illustrated article. Ed.

1170

Paralysis of the Recurrent Nerve Due to Circulatory Lesions. J. W. Gleitsmann, *Arch. intern. de Laryngol.*, Jan.-Feb., 1913, and *Med. Rec.*, Feb. 22, 1913.

Abstracted in The Laryngoscope, Dec., 1913, p. 1145.

1171

1. Tumor of the Larynx. 2. Falsetto Voice. O. Glogau, Trans. N. Y. Acad. of Med., 1913.

Abstracted in The Laryngoscope, July, 1913, p. 787.

1173

Roentgenization for Non-malignant Laryngeal Vegetations. A. L. Gray, *Med. Rev.*, March, 1913, p. 88.

Four cases are reported in which great improvement resulted. In two cases the growths were single, one involving the anterior portion of the right ventricle and right vocal cord, and the other, the middle of the right cord. In the other two cases the growths were multiple, one involving both cords and extending to the epiglottis and trachea; the other was multiple on the right cord. Ed.

1179

Cases Exhibiting Laryngeal Crises. C. E. Ide.

Original contribution to The Laryngoscope, Sept., 1913, p. 936.

1182

Case of Acute Dyspnea in a Child 4 Months Old. C. J. Imperatori. Trans. N. Y. Acad. of Med., May 28, 1913.

Abstracted in The Laryngoscope, Dec., 1913, p. 1153.

1189

Chronic Stenosis of Larynx and Trachea—Report of a Case. C. A. Leavy.

Original contribution to The Laryngoscope, Aug., 1913, p. 841.

1191

Development and Extension of the Limits of Laryngology. G. A. Leland.

Original contribution to The Larygoscope, Dec., 1913, p. 1121.

1192

Laryngeal Tuberculosis. R. LEVY, *Jour. A. M. A.*, May 17, 1913, p. 1518.

Levy discusses the frequency, early symptoms, diagnosis and treatment. He advocates rest of vocal cords in conjunction with rest and general hygienic measure, the use of the galvano-cautery, injection or section of the superior laryngeal nerve, and the use of tuberculin. He also urges the securing of proper nasal respiration. ED.

1194

Fibroma of the Larynx. F. O. LEWIS, Trans. Phila. Laryngol. Soc., Nov. 18, 1913.

Abstracted in THE LARYNGOSCOPE, Jan., 1914, p. 79.

1200

Differential Diagnosis and Treatment of Chronic Laryngitis. E. MAYER, *Jour. A. M. A.*, Sept. 27, 1913, p. 1215.

As etiological factors Mayer mentions obstructive conditions of the nose, chronic catarrhal conditions of the naso-pharynx which may extend to the larynx, and elongated uvula or its papillomatous tip. Hypertrophied lingual tonsils, follicular pharyngitis, pressure in auditory canal, constitutional digestive and cardiac disturbances, pressure of new growths or enlarged glands, dusty occupations and exposure to gases, alcohol, tobacco, sudden changes in temperature, improper use of voice, etc., are also factors detailed. Treatment and diagnostic methods are discussed. ED.

1201

The Semon Lectures at the University of London. P. MCBRIDE, *Jour. of Laryngol.*, April, 1913.

In the first lecture McBride confined himself to personal details and gave historical and biographical data; in the second McBride discussed the significance of Semon's contributions to literature. These lectures were delivered in honor of Sir Felix and in recognition of his position in laryngology. ED.

1202

Laryngeal Papilloma in a Child. J. MCCOY, Trans. N. Y. Acad. of Med., March 26, 1913.

Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 1027.

1206

Hemorrhage in Endo-laryngeal Interventions. MERMOD, *Arch. intern. de Laryngol.*, May-June, 1913; and *Arch. gen. de Med.*, Aug., 1913, p. 677.

Hemophilia, arteriosclerosis, menstruation, and acute inflammatory conditions are contra-indicative to operation. Simple growths bleed little, tuberculous growths bleed more than do the cancerous. The cold snare is less dangerous than the cutting forceps or curettes. If the galvanocautery be used too roughly or at too intense a temperature, severe hemorrhage may result. Mermod discusses in detail the methods of treatment—heat and cold, styptics, direct or indirect compression, forci-pressure, general measures, and surgical measures as tracheotomy or thyrotomy. ED.

1218

Angioma of the Larynx, Especially Its Relation to Chronic Laryngitis. JOHN PHILLIPS, *Am. Jour. Dis. of Children*, Feb., 1913.

Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 971.

1222

Fracture of Larynx Through Blow From Hoof of Horse. PRINCETEAU, *Jour. de Med. de Bordeaux*, Aug. 10, 1913.

Case of man who was kicked in the right lateral region of his neck by a horse. The iron left its mark on the horizontal portion of the inferior maxilla and on the right side of the laryngo-tracheal tube. Slight vomiting of blood, syncope, dyspnea and intense wheezing. In view of the absence of hemorrhage, displacement of the fragments, hematic edema of the cords or sub-glottic displacement, laryngectomy following suture of the cartilaginous fragments was not performed. The patient recovered though he still has a slight hoarseness which is agitated by a slight grating of the left arytenoid. ED.

1225

New Method of Examining Larynx and Trachea Roentgenographically. A. RETHI, *Ztschr. f. Laryngol*, Bd. 6, Heft 1, 1913, p. 27.

A film is placed directly behind the larynx in the hypo-pharynx and the exposure is made backwards. The film must be cut the right size and packed properly; the pharynx and hypo-pharynx must be properly anesthetized. In the skiagram the body of the hyoid bone, the body of the thyroid, the false and true cords, the sinus and occasionally the glottis are discernible. Recurrent paralysis, stenosis, malignant disease, etc., can be determined in this way. ED.

1227

Angioma of the Larynx. H. O. RUH, *Am. Jour. Children's Dis.*, Feb., 1913.

Child of 9 months. Following measles, hoarseness, croupous cough, dysphagia, inspiratory stridor and finally pneumonia. Death. Autopsy revealed laryngeal angioma. ED.

1230

Case of Hodgkins Disease With Pressure Symptoms on Larynx and Esophagus. WM. A. SCRUTON, Trans. N. Y. Acad. of Med., Jan. 22, 1913.

Abstracted in THE LARYNGOSCOPE, June, 1913, p. 715.

1235

Grippal Laryngeal Stenosis Cured by Fibrolysis. N. THIBERGE, *New Orleans Med. and Surg. Jour.*, Sept., 1913, p. 225.

A child of 2½ years gradually developed cyanosis, due to exposure, necessitating tracheotomy. The culture showed only grip; 160,000 units were administered without benefit but with little anaphylaxis. The inability to dispense with the tube due to ankylosis of the aryteno-cricoid joint was relieved by injecting fibrolysin. SCHEPPEGRELL.

1238

Case of Laryngeal Growth. S. W. THURBER, Trans. N. Y. Acad. of Med., March 26, 1913.

Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 1022.

1243

Study of Innocent Growths of the Larynx Illustrated With Eight Cases. J. W. WOOD.

Original contribution to THE LARYNGOSCOPE, March, 1913, p. 161.

1247

Celluloid Doll in Left Bronchus. BALTAR CORTES, *Rev. espan. de Laringol.*, Jan.-Feb., 1913.

By means of Bruenings' tubes the author successfully removed a celluloid doll which had been in the left bronchus for two months.

ED.

1258

Almost Total Section of Trachea in a General Paralytic. CHALIER AND BOVET, *Lyon Med.*, April 27, 1913.

The trachea was almost entirely cut through; the large vessels, however, were not injured. Severe hemorrhage from thyroid which was also injured. Only the perichondrium was sewed together; the skin wound was left open to avoid emphysema. ED.

1260

Broncholith, Bronchial Calculus or Lung Stone. W. F. CHAPPELL, Trans. Am. L. Assn., 1913, p. 253.

Woman, aged 52, complained of throat trouble for some time but not serious until she was suddenly seized with an attack of wheezing accompanied by spasmodic attacks of coughing, intense tickling in her throat and slight expectoration. A few days later, severe coughing fit and small calcarious mass expelled; tickling relieved but wheezing continued. After another few days large calcarious piece expectorated during coughing spell which relieved all the symptoms. After few months another calculus was coughed up which joins with former and forms a round piece, the size of a nickel. Chemically it consists of phosphate of lime. ED.

1262

Removal of a Foreign Body from the Inferior Secondary Left Bronchus CHEVAL, Soc. clin. des Hop. de Brux., April 19, 1913.

Child of 5 years aspirated a shoe-button; attempted extraction through the tracheotomy wound. X-ray showed the foreign body in the sixth left inter-costal space. Removal by lower bronchoscopy. Recovery.

ED.

1264

Intra-tracheal Insufflation Anesthesia. F. J. COTTON AND W. M. BOOTHBY, *Ann. of Surg.*, Jan., 1913.

Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 1038.

1269

Emergency Tracheotomy. A. DENKER, *Med. Klinik*, Jan. 5, 1913. Abstracted in THE LARYNGOSCOPE, Aug., 1913, p. 866.

1287

Primary Carcinomata of the Air Passages. P. HEYMANN, *Ztschr. f. Laryngol.*, Bd. 6, Heft 5, 1913, p. 735.

Because of the slow growth an erroneous diagnosis of bronchial asthma was at first made. Tracheoscopy revealed tumor on anterior tracheal wall to the right of its union with right bronchus. By the direct method a specimen was excised, examined microscopically and found to be carcinoma. By Gluck's method the whole trachea was removed and prosthesis performed after fourteen days, consisting of inserting an elastic drainage tube which was fastened around the neck. The man (aged 26 years) is at work. ED.

1307

Tracheal Obstruction Due to Thymus. H. L. LYNAH, *Arch. of Ped.*, Sept., 1913.

In the case of this boy, aged 3½ years, the dyspnea was relieved by intubation but returned after removal of the tube and mother refused to permit surgical intervention or re-intubation. It is interesting to note that this child received two injections of antitoxic sera without anaphylaxis, and that, though asthmatic since birth, the child had never had convulsions. ED.

1309

Tracheal Obstruction Due to Thymus Enlargement. JOHN E. MACKENTY, Trans. N. Y. Acad. of Med., Jan. 22, 1913. Abstracted in THE LARYNGOSCOPE, June, 1913, p. 712.

1310

Difficult Decanulement Due to Curvature of Tracheal Wall. M. MASSINI, *Jahrb. f. Kinderh.*, Bd. 76, 1913, p. 402.

Boy of 1½ years with valve stenoses of the trachea. Intubation without results; finally Schmieden's bougie canula employed with success. The administration of diphtheria serum often makes it possible to remove the canula after twenty-four hours and thus prevent stenosis. ED.

1342

Unusual Case of Leech in the Trachea. A. ZOGRAFIDES, *Monatschr. f. Ohrenh.*, Heft 1, 1913, p. 65.

Patient was a hunter, 40 years old. Diagnosis of laryngeal tuberculosis was made because of the dyspnea, attacks of coughing, bloody expectoration, and dysphagia. A leech was discovered in the larynx but it fell into the trachea upon attempted removal. It was finally removed by tracheoscopy. ED.

1346

Early Diagnosis of Cancer of the Esophagus. A. BASSLER, *Jour. A. M. A.*, April 26, 1913, p. 1283.

Abstracted in THE LARYNGOSCOPE, Sept., 1913, p. 957.

1350

Open Safety-pin in Esophagus of Baby Three Months Old. T. L. BLACKBURN, *Med. Jour. South Africa*, Sept., 1913, p. 46.

No disturbance in digestive or respiratory organs. Radiograph showed open pin in esophagus point up, toward the middle of sternum. After eight days pin pushed to pylorus and two days later stomach opened and pin removed; suture of wall of stomach; rapid recovery. ED.

1354

Foreign Bodies in the Esophagus. C. G. COAKLEY, *Trans. Am. L. Assn*, 1913, p. 248.

Boy of 16 years swallowed a piece of the plate, while eating soup. X-ray showed foreign body in larynx; temperature of patient 105° F.; rapid pulse and suspicious pneumonic areas in right lung. Esophagoscopic removal; death after fourteen hours from acute septic pneumonia. The other case reported is that of a child who swallowed a coin, the size of a quarter which remained in the esophagus for five days without even interfering with deglutition. Recovery. ED.

1359

Congenital Occlusions of the Esophagus and Lesser Bowel. G. H. EDINGTON, *Glasgow Med. Jour.*, July-Aug., 1913.

Abstracted in THE LARYNGOSCOPE, Jan., 1914, p. 51.

1375

Removal of Foreign Bodies from Upper End of the Esophagus. R. H. JOHNSTON.

Original contribution to THE LARYNGOSCOPE, July, 1913, p. 761.

1390

Foreign Body (Set of Teeth) Tolerated in the Esophagus Without Much Reaction for 27 Days. G. LIEBAULT, *Rev. hebd. de Laryngol.*, April 5, 1913, p. 491.

Abstracted in THE LARYNGOSCOPE, Aug., 1913, p. 818.

1391

Esophageal Tuberculosis, a Critical Review. L. B. LOCKARD.

Original contribution to THE LARYNGOSCOPE, May, 1913, p. 561.

1396

Some Interesting Esophageal Cases. W. P. MILLSPAUGH.

Original contribution to THE LARYNGOSCOPE, Sept., 1913, p. 938.

1403

Spasms of Esophagus. J. O. Rabasa, *Arch. intern. de Laryngol.*, March-April, 1913, p. 430.

Girl of 16 years complained of gastric disorder. Examination showed spasm of both upper and lower end of esophagus. The author found that a sub-cutaneous morphin injection prior to the esophagoscopy was very valuable. Ed.

1426

Removal of Foreign Body from Esophagus. Removal of Foreign Substance from Both Bronchi. S. Yankauer, Trans. N. Y. Acad. of Med., Jan. 22, 1913.

Abstract in The Laryngoscope, July, 1913, p. 790.

1428

Clinical Results of Nasal Treatment in Asthma. W. J. Abbott, *Cleveland Med. Jour.*, March, 1913.

Abstracted in The Laryngoscope, Sept., 1913, p. 957.

1444

Anaphylaxis and Asthma. J. Matthews, *Med. Rec.*, Sept. 20, 1913, p. 512.

In 90 per cent of the cases treated within the last four years, Matthews states that the principal lesion was in the upper air tract. Chronic suppuration or retention of mucoid secretions in the nose or accessory sinuses occurred in the majority of the cases. Each case requires individual therapeutic measures and, according to the author, permanent cure is doubtful, for susceptibility remains throughout life and the symptoms re-occur whenever there is production and re-absorption of the specific antigen to which the individual is sensitive. Ed.

1455

Bronchoscopy and Esophagoscopy. A. E. Bulson, *Ind. State Med. Assn. Jour.*, April, 1913.

Abstracted in The Laryngoscope, Sept., 1913, p. 954.

1459

Foreign Body in Right Bronchus; Lower Bronchoscopy; Successful Extraction. G. H. Cocks, *Med. Record*, July 5, 1913.

Abstracted in The Laryngoscope, Oct., 1913, p. 1031.

1462

Personal Observations with Suspension Laryngoscopy. W. Freudenthal, *Med. Rec.*, Feb. 22, 1913.

Abstracted in The Laryngoscope, Jan., 1914, p. 54.

1467

Two Fatalities in Bronchoscopic Removal of Foreign Bodies. V. Hinsberg, *Ztschr. f. Ohrenh.*, Bd. 68, Heft 2-3, 1913, p. 180.

Case 1: Woman of 36 years swallowed plum-pit; suffocating attacks. X-ray examination did not reveal foreign body. Bronchoscopy showed pit in the main bronchus. In removing it with a claw-forceps, it slipped at the epiglottis; dyspnea and cyanosis. Bronchoscopy revealed pit in left upper lobe of the bronchus and main bronchus. Very difficult breathing. Death on next day. At autopsy the right lung was found to be very much contracted; in the right upper lobe bronchus the pit was found. firmly embedded. To guard against the danger of the foreign body escaping at the epiglottis the author recommends the Bruenings' bronchial protector. *Case 2*: Boy of 14 swallowed collar button. Roentgen plate showed button in the left lung behind the sixth rib near the vertebral column. Bronchoscopy showed it embedded in granulation tissue wholly occluding lumen of bronchus, various methods of removal failed. During an attempt to remove it with blunt-pointed tenaculum severe hemorrhage resulted. Death. ED.

1470

Foreign Body in Larynx and Trachea Removed by the Aid of the Suspension Laryngoscope. S. IGLAUER.

Original contribution to THE LARYNGOSCOPE, June, 1913, p. 706.

1471

Suspension Laryngoscopy With Report of Cases. S. IGLAUER.

Original contribution to THE LARYNGOSCOPE, June, 1913, p. 683.

1474

Recent Progress of Endoscopic Methods as Applied to the Larynx, Trachea, Bronchi, Esophagus and Stomach. C. JACKSON.

Original contribution to THE LARYNGOSCOPE, July, 1913, p. 721.

1475

Recent Cases of Esophagoscopy, Bronchoscopy and Laryngoscopy. R. H. JOHNSTON, *Am. Jour. of Surg.*, July, 1913.

The first case, a little girl, had swallowed a penny; the second, man of 39 years, was a case of stricture at the upper end of the esophagus which was gradually dilated with graduated olive points; the third, a boy of 7, swallowed a grain of corn which lodged in the right bronchus and was removed by bronchoscopy; the fourth, a boy of 2, aspirated a water-melon seed which was removed with tracheoscope; in the fifth case a papilloma was removed from the left vocal cord by the indirect (mirror) method from a man of 30 years, and later a large tumor mass from the right false cord. ED.

1476

Probable Tumor of the Lung Diagnosed by Upper Bronchoscopy. R. H JOHNSTON.

Original contribution to THE LARYNGOSCOPE, Feb., 1913, p. 115.

1478

Some Original Endoscopic Methods. R. H. JOHNSTON.

Original contribution to THE LARYNGOSCOPE, May, 1913, p. 607.

1485

New Principle in Esophagoscopy and Gastroscopy. R. LEWISOHN, *Ann. of Surg.*, Jan., 1913.

Abstracted in THE LARYNGOSCOPE, May, 1913, p. 591.

1187

Removal of a Dime from the Larynx After Eighteen Months by Direct Laryngoscopy. J. E. Mackenty, Trans. N. Y. Acad. of Med., March 26, 1913.

Abstracted in The Laryngoscope, Oct., 1913, p. 1025.

1488

Removal of a Stick-pin from Bronchus. J. S. Macnie, *Jour.-Lancet*, Aug. 15, 1913.

The pin was localized by the x-ray and stereoscope and removed by means of the bronchoscope. The chief difficulty was to enter the point of the pin into the lumen of the bronchoscope, but it was eventually extracted by means of a long Killian-Little alligator-jaw forceps. The only disturbance the pin had caused was an occasional coughing fit. Ed.

1504

Tracheo-bronchoscopy for the Removal of Foreign Body. J. R. Rogers. *Mich. State Med. Soc. Jour.*, April, 1913.

Girl of 15 swallowed two-inch belt pin. At first mild paroxysm of coughing but later no dyspnea and very slight dysphagia. Radiographic plates revealed indefinite location. Tracheoscopy; tube passed into both bronchi but pin not found. A week later tracheoscopy again performed and pin located in depth of bronchus and removed. No ill-effects.

Ed.

1506

Pin Imbedded in Bronchus Removed by Inferior Bronchoscopy. Sargnon and Vignard, *Lyon Med.*, April 13, 1913.

The point was imbedded in the bronchial mucosa; the glass head was not visible. The point was freed and the pin extracted. The authors mention how little danger there is in careful tracheotomy without anesthesia and how much easier such a procedure makes all subsequent work.

Ed.

1510

The Extended Application of Killian's Suspension Laryngoscopy. A. Seiffert, *Ztschr. f. Laryngol.*, Vol. 6, No. 4, 1913.

By means of a special distension speculum the writer removed foreign bodies from the hypo-pharynx and esophagus. He also succeeded in performing bronchoscopy and esophagoscopy and in removing foreign bodies, from the trachea while the patient's head was suspended by Killian's instrument. The writer had suspension laryngoscopy performed on himself and considers it a very pleasant procedure. Glogau.

1511

Safety-pin Removed from Larynx of Child by Direct Laryngoscopy. H. Smith, *N. Y. Med. Jour.*, Aug. 16, 1913.

Abstracted in The Laryngoscope, Nov., 1913, p. 1097.

1514

Direct Laryngoscopy, Trachei-bronchoscopy and Esophagoscopy. A. L. Turner and J. S. Fraser, *Edin. Med. Jour.*, Jan.-Feb., 1913, p. 6.

Abstracted in The Laryngoscope, July, 1913, p. 760.

1519

Surgical Treatment of Laryngeal Tuberculosis. N. Arnoldson, *Arch. f. Laryngol.*, Bd. 27, Heft 1, 1913.

Thirty-four cases are reported. The immediate results were usually good, but did not remain so, permanently. Arnoldson discusses minutely indications and contra-indications in the various affections in the various parts of the larynx. In forty-two cases of amputation of the epiglottis improvement was marked so that this procedure is advocated in cases where the dysphagia is due to epiglottic disease. Ed.

1520

Galvano-plastic Treatment of Tuberculosis of the Larynx. L. Bar, *Arch. intern. de Laryngol.*, Sept.-Oct., 1913, p. 386.

Mermod's method is highly recommended. Bar, however, mentions certain contra-indications—nervousness of patient, laryngeal stenosis, etc. Ed.

1527

Best Method of Removing Larynx. R. Botey, *Arch. ital. de Laryngol.*, July 15, 1913, p. 111.

Abstracted in The Laryngoscope, March, 1914, p. 218.

1530

Case of Complete Laryngectomy Under Cocain Anesthesia. F. D. Boyd, *Tex. State Jour. of Med.*, May, 1913.

A solution of 0.5 of 1 per cent cocain was used. The patient was instructed to raise his forefinger when there was the slightest pain and then more cocain was injected. Hajek's technic was employed. Ed.

1535

Removal of Singer's Nodes by Orthoscopic Method. Buys, *La Policlin.*, April 1, 1913.

The epiglottis was painted with a cocain solution and the superior laryngeal nerve anesthetized with injection of novocain and alcohol. However, chloroform had also to be used since the patient could not tolerate the introduction of the tube (Hill's). Result excellent. Ed.

1536

Experimental Surgery of the Trachea C. Caldera, *Arch. ital. di Otol.*, Jan., 1913, and *Arch. f. Laryngol.*, Bd. 27, Heft 2, 1913.

Caldera demonstrated by experiments on animals that transverse tracheal wounds are not dangerous if infection be avoided and if the margins of the wound be carefully adjusted. An isolated piece of trachea joins itself to the upper and lower stump with the help of connective tissue and this also happens even when the piece has been isolated as long as two days. Ed.

1566

Calcium Bromid in the Treatment of Laryngo-spasm and Tetany. B. Gruenfelder, *Therap. Monatsch.*, June, 1913.

After a two years' experience with calcium bromid, the author recommends it, feeling that it is a more rapid narcotic than other bromid salts. The spasms usually disappeared in a few days when 2.0 g a day were administered. Ed.

1567

Tracheo-bronchial Injection in Asthma Treatment. GRUENWALD, *Muench. Med. Wchnschr.*, No. 25, 1913, p. 1377.

With the laryngeal syringe 1 ccm. of a 1:10,000 solution of suprarenin (adrenalin) is injected through the glottis into the trachea. One injection suffices to abort an attack of idiopathic bronchial asthma and prevent recurrence for months. This method has not, however, proved successful in reflex asthma or in hay-fever. ED.

1571

Surgical Treatment of Post-diphtheritic Tracheal Stenosis. HAGEMANN, *Med. Klinik*, No. 38, 1913.

Stenosis simply due to diphtheria has not been observed; it is either consequent to trachectomy or, as in the present cases, to intubation. The tubes remained *in situ for* three weeks; decubital ulcers, cartilaginous necrosis and finally stricture. Operative treatment of stenoses with post-operative dilatation with bougies. The children wore cannulae during this time. One case recovered, another can only go for three weeks without the cannula because of recurring stenosis, and in the third the treatment wás unsuccessful. ED.

1575

Endobronchial Treatment of Bronchitis and Asthma. *Monatschr. f. Ohrenh.*, Heft 1, 1913.

In our country, Horn (San Francisco), and Freudenthal (New York), are the only ones that published observations on the bronchoscopic treatment of asthma. European literature on the subject is quite extensive and authors like Pieniazek, H. von Schroetter, Nowotny, A. Galebsky, Ephraim, Sobernheim and others apparently obtained good results by this method.

The writers of this article treated 30 cases of asthma and bronchitis. The ages of the patients varied from 14 to 68 years and the disease was almost in every case of several years standing. In 28 cases the bronchoscopic tube was introduced and the medicine applied by means of Bruening's spray. Only in two instances Ephraim's flexible spray was resorted to. The medicaments used were mostly Ephraim's mixture (20 cg. novocain, 1 g. 1 per cent adrenalin and 0/9 per cent salt solution); in some instances Schleich's solution with adrenalin or 3 per cent cocain-adrenalin solution. The treatments were repeated eight to ten times in every case.

Of the three cases of bronchitis, one was cured, one improved and the third one remained unchanged.

Of the 27 cases of bronchial asthma, 6 were cured, 11 improved and 12 not influenced at all by the endo-bronchial treatment. Local inspection in the cases of bronchitis revealed a strongly injected, dark-red swollen and bulging mucous lining. The lumen of the bronchi was contracted and disappeared almost at expiration and coughing. In bronchial asthma the trachea and main bronchi were apparently normal. The writers therefore presume that the underlying pathologic changes are probably located within the smaller bronchi that are hidden from view.

The contested question whether the injected medicine or the mechanical action of the bronchoscope was responsible for the therapeutic effect, was finally decided by the writers. In two control cases they injected once sterile water and the other time no medicine at all. In both instances the treatment was followed by the same symptoms of relief. The mechanic and expectorant action of the bronchoscopic tube is, after the opinion of the writers, the main therapeutic agent. The injected medicine is only of minor importance; it influences by its anemic action the vasomoter changes of the mucosa and quiets by its anesthetic effects the terminal filaments of the vagus. Thus both secretion and muscular spasm become attenuated. GLOGAU.

1580

Epiglottic Suture; its Value in Indirect Laryngoscopy. C. HORSFORD, *Brit. Med. Jour.*, May 3, 1913, p. 928.

For facilitating intra-laryngeal operations this procedure should be used whenever the epiglottis hinders a delicate intra-laryngeal manipulation. It may also be used in the diagnosis if other methods of lifting the epiglottis have failed. ED

1582

Laryngotomy and Plastic Operation for Formation of Adventitious Vocal Cords. C. JACKSON, Trans. N. Y. Acad. of Med., May 28, 1913.

Abstracted in THE LARYNGOSCOPE, Dec., 1913, p. 1154.

1583

Technic of Insertion of Intra-tracheal Insufflation Tubes. C. JACKSON, *Surg. Gynecol. and Obstetr.*, Vol. 17, 1913, p. 507.

Jackson summarizes the following points to be observed: 1. The patient should be fully under the anesthetic by the open method so as to get full relaxation of the muscles of the neck. 2. The patient's head must be in full extension, with the vertex firmly pushed down towards the feet of the patient, so as to throw the neck upward and bring the occiput down as close as possible beneath the cervical vertebrae. 3. No gag should be used nor necessary. 4. The epiglottis must be identified before it is passed and the speculum passed sufficiently below its tip to prevent the latter from slipping. 5. Too deep insertion must be avoided, for then the speculum goes posterior to the cricoid and the cricoid is lifted exposing the mouth of the esophagus. This is bewildering until sufficient education enables the operator to recognize the landmarks. ED.

1584

Tracheotomy With Lantern Slide Demonstrations. C. JACKSON, Trans. Phila. Laryngol. Soc., Sept. 23, 1913.

Abstracted in THE LARYNGOSCOPE, Jan., 1914, p. 71.

1594

Modification in Technic of Laryngectomy. LAZARRAGA, *Arch. de Rinol.*, Nov.-Dec., 1913, p. 342.

Tracheotomy is first performed. After the larynx has been isolated the trachea is incised at the first ring and the tracheal stump wrapped in a piece of gauze. The larynx is cut from below upward and the tracheal walls sewed up. This method has been introduced by Mackenzie and is similar to that of Rueda. ED.

1598

Treatment of Chronic Stenosis of Larynx and Trachea. H. L. LYNAH, *Boston Med. and Surg. Jour.*, May 22, 1913.

Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 1033.

1603

Treatment of Laryngeal Tuberculosis. M. MENIER, *Ztschr. f. Laryngol.* Vol. 6, Heft 2, 1913; and *Pensiero Med.*, Feb. 2, 1913.

The silence cure dates back to 1838 and was introduced by Colombat Tracheotomy in the treatment of laryngeal tuberculosis was first described by Carmichael in *Dublin Medical Journal*, 1833. ED.

1609

Alcohol Injections Into Superior Laryngeal Nerve in Tuberculous Laryngitis. W. MITHOEFER, *O. State Med. Jour.*, July, 1913, p. 315.

The presence of a painful spot at a point where the internal branch of the superior laryngeal nerve pierces the thyro-hyoid membrane is a positive indication. A needle, not too sharp, is inserted 1½ cm. over the painful spot. The needle is then turned upward and outward toward the ear and 15 to 20 drops of 80 per cent warm alcohol are injected. This therapy is valuable in the aryteno-epiglottic type of tuberculosis. ED.

1610

Surgical Treatment of Laryngeal Stenosis Following Double Recurrent Paralysis. J. MOLINIE, *Le Larynx*, May, 1913; and *Rev. hebd. de Laryngol.*, Sept. 13, 1913.

Molinie has performed his operation on cadavers and on one case in the living. The purpose of this technic is to diminish the antero-posterior and increase the transverse diameter of the larynx. The thyroid cartilage is exposed and split in the median line and an incision made into each thyroid plate parallel to the median line about 5 mm. from it. In the one case reported, only partial relief was obtained but the author regards the procedure as harmless and capable of producing the desired results. ED.

1613

Radium in Treatment of Cicatricial Stenosis of Esophagus. F. NEUMANN, *Wr. klin. Wchnschr.*, Nov. 20, 1913.

Neumann reviews the previous methods of treating cicatricial stenosis of the esophagus, discusses their respective advantages and then discourses on the use of radium from which he feels permanent cure will result. ED.

1628

New Method of Treating the Dysphagia of Laryngeal Tuberculosis. A SAUPIGUET, *Rev. hebd. de Laryngol.*, Sept. 27, 1913, p. 377.

The mucosa and perichondrium covering the arytenoids are removed at intervals of about two days and glycerin and insufflation of orthoform applied to resulting wounds. This procedure is continued until the entire mucosa and perichondrial covering of the arytenoid region is converted into scar tissue. Several cases are reported in which the dysphagia was overcome, and the respiration and general condition of the patient improved. ED.

1637

Advantages of Supplementing Laryngectomy With Gastrostomy. F. Torek, *Zntrlbl. f. Chir.*, Dec. 27, 1913.

Abstracted in The Laryngoscope, Jan., 1914, p. 69.

1646

Note on a Circumscribed Epidemic of Diphtheria. H. M. Adler, *Boston Med. and Surg. Jour.*, Feb. 6, 1913.

Adler reports a circumscribed epidemic of diphtheria with an interesting accompanying illustration supporting his claim that extension of the disease was by contact. Berry (Mosher).

1658

Diphtheria Bacilli in Secretions of Nose and Throat in Infants With Nutritional Disturbances. E. Conradi, *Muench. Med. Wchnschr.*, March 11, 1913.

Abstracted in The Laryngoscope, July, 1913, p. 769.

1660

Changes in Hypophysis in Diphtheria. G. Creutzfeldt and R. Koch, *Virchows Arch.*, Vol. 223, No. 1, 1913.

In seven cases of death from cardiac involvement in diphtheria profound changes in the pars intermedia of the hypophysis were found. Diphtheria bacilli injected into guinea-pigs also produced these changes. The author, therefore, recommends a combined epinephrin-hypophysis extract therapy in diphtheritic cardiac involvement. Ed.

1672

Sore Throat and Diphtheria. H. I. Goldstein, *N. J. Med. Jour.*, Feb., 1913.

Goldstein discusses the nature, etiology, symptomatology and treatment of tonsillitis vs. the symptomatology and treatment of diphtheria.

Ed.

1674

Diagnosis and Treatment of Diphtheria. J. H. Greene, *Boston Med. and Surg. Jour.*, June, 19, 1913.

Greene feels that serums should be used in the presence of symptoms of diphtheria even if the examination proves negative. He thinks larger doses than those usually recommended should be given. Intubation is always preferable to tracheotomy. Carriers must be isolated.

Ed.

1699

Symptoms and Diagnosis of Diphtheria. L. J. Menville, *N. Orleans Med. and Surg. Jour.*, July, 1913.

Abstracted in The Laryngoscope, March, 1914, p. 191.

1712

Remarks on and Results of Twenty Cases of Laryngeal Diphtheria Requiring Tracheotomy. C. E. Perkins.

Original contribution to The Laryngoscope, Aug., 1913, p. 819.

Herpes With Diphtheria. F. Reiche, *Med. Klinik*, Aug. 31, 1913.

In 336 (6.96 per cent) of 4,830 cases of diphtheria herpes was observed. The eruption was more frequent in the older patients and usually appeared on the third day of the illness. Ed.

1727

Chronic Diphtheritic Infection of Lungs. A. Schmidt, *Muench. med. Wchnschr.*, Jan. 7, 1913.

Schmidt gives the case-history of a woman of 62 years whose sputum constantly contained pure cultures of diphtheria bacilli while the tonsils remained free. The infection was of perhaps ten years' duration. Animal tests showed the bacilli to be of the avirulent type. Apparently no one in the family was infected. Ed.

1741

Diphtheria of Stomach and Diphtheria Onychia. F. E. Tylecote, *Brit. Jour. Children's Dis.*, May, 1913.

Boy of 3 years, first seen on fifth day with very severe attack of diphtheria. Temperature subnormal and appearance very toxic; false membrane covering posterior pharyngeal wall, tonsils, uvula and almost whole of soft palate and extending forward on hard palate almost to teeth. Antitoxin administered. Death on tenth day. Autopsy. Unusual findings, but stomach mucosa covered with typical diphtheritic membrane. The author regards it as a typical case of diphtherial gastritis. Ed.

1767

Depressor Substance in Serum of Blood of Patients With Exophthalmic Goiter. J. M. Blackford and A. H. Sanford, *Am. Jour. Med. Sci.*, Dec., 1913, p. 796.

The authors used serum from twenty-eight exophthalmic goiter cases, and also serums from normal individuals, from patients having goiters without apparent intoxication, and from patients with an apparently long-standing intoxication presumably due to adenomata of the thyroid, but only the serums of patients with active symptoms of exophthalmic goiter and with markedly hyperplastic glands, microscopically demonstrated, produced in the injected dogs definite symptoms of cardiovascular depression. Ed.

1840

Abderhalden's Test in Disease of the Thyroid. A. E. Lampe and R Fuchs, *Muench. med. Wchnschr.*, Sept. 30, 1913.

The authors used this test in sixty cases in which the thyroid was abnormal and found that the serum from exophthalmic goiter patients induced a constant positive reaction with tissue from the thyroid of patients with exophthalmic goiter. The serum of the myxedematous as well as that from endemic goiter cases likewise disintegrated ordinary thyroid tissues. The ferments elaborated in their conditions are apparently very specific. Ed.

1862

Thyroid in Pregnancy. J. W. Markoe and L. A. Wing, *Bull. Lying-in Hosp. of City of N. Y.*, June, 1913.

Of the 1,000 cases observed 550 were primiparae and 450 multiparae; of the 97 cases of enlarged thyroid found, 64 were primi- and 33 multiparae. In seven primi- and one multiparae family histories of goiter were present; in six there was history of menstrual disturbance. Brief details of 98 cases are given. Ed.

1891

Pole Ligation for Hyperthyroidism. Pearson, *Dublin Jour. Med. Sci.*, July, 1913.

Abstracted in The Laryngoscope, Jan., 1914, p. 44.

1930

Laryngo-tracheal Manifestations of Thyroid Disease. O. J. Stein.

Original contribution to The Laryngoscope, March, 1913, p. 176.

1937

Goiter from the Standpoint of the Specialist. M. B. Tinker.

Original contribution to The Laryngoscope, Aug., 1913, p. 854.

1950

Ligation of Superior Thyroid for Goiter. I. Watson, *O. Dom. Jour. of Med. and Surg.*, March, 1913.

Local anesthesia should be used whenever possible. The patient should rest in bed several days prior to the ligation; one hour before the operation morphin or morphin and hyoscin is given to prevent psychic shock and quiet the patient. The author states that simple and conservative operations are increasing, for they always lessen the symptoms, even if they do not effect a cure. Ed.

1957

Pathology of Simple and Exophthalmic Goiter. L. B. Wilson, *Med. Rec.*, Aug. 30, 1913.

Proper detailed pathological study permits of a correct diagnosis in 95 per cent of the cases, of the stage of the disease in 80 per cent, and of its severity in 75 per cent. Non-toxic goiter can thus, too, be diagnosticated in 75 per cent of the cases. The clinical toxic non-exophthalmic type is the most difficult to diagnosticate. Our knowledge of these cases is still too incomplete to permit of conclusions about the details of pathology. Ed.

1968

Staphylococcus-spray Treatment of Diphtheria Carriers. A. M. Alden, *Jour. A. M. A.*, June 14, 1913, p. 1876.

The following conclusions are stated: 1. No patient who has had diphtheria should be released from quarantine until at least two consecutive negative cultures are obtained from both nose and throat, and from ear if symptoms are present. Some other local application besides the antitoxin is necessary to rid the throat and nasal passages of the diphtheria bacilli. 2. In fifteen of sixteen cases the staphylococcus-sprays effectively cleared the throat of these bacilli after other methods failed, without harmful effects resulting from the use of the spray. ED

1972

Internal Treatment of Exophthalmic Goiter. W. H. BECKER, *Deut. med. Wchnschr.*, Sept. 11, 1913.

A few months of conservative treatment with rest, tonics and specific measures should be tried before operation is undertaken. Becker tried this internal treatment in several interesting cases and found, upon re-examining them after seven years, that they were permanently benefited and in good health. ED.

1979

Roentgen Rays in the Treatment of Goiter. M. BLITSTEIN, *Prakt. Arzt.*, No. 7, 1913.

While the author used the roentgen rays effectively in four cases of goiter, a fifth case, that in a woman of 44 years, showed even after the first treatment peculiar symptoms, such as fever, headache, debility and quickening of pulse-rate. ED.

2000

New Anti-diphtheritic. FREUND, *Deut. med. Wchnschr.*, Nov. 27, 1913.

This new remedy which is not to supplant but merely to reinforce the serum is said to be a powerful bactericide and to prove itself especially effective in cases of bacteria carriers. ED.

2005

Thyroid Medication in Children. M. B. GORDON, *N. Y. Med. Jour.*, April 26, 1913.

All the cases showed some improvement—increase in weight, greater mentality, etc. Untoward effects, such as progressive diarrhea, increased salivation or perspiration, tachycardia, irritability of temper, or skin changes as appear in myxedema, occurred in some cases.

ED.

2024

Surgical Aspects of Goiter. URBAN MAES, *New Orleans Med. and Surg. Jour.*, July, 1913.

Abstracted in THE LARYNGOSCOPE, Nov., 1913, p. 1077.

2056

Treatment of Diphtheritic Stenosis of the Larynx. N. I. USPENSKY, *Pediatria*, Vol. 4, No. 6, 1913.

The author reports on 2,760 cases; in 1,186 intubation or tracheotomy was indicated; 559 patients died. In infants under one year, the mortality is the highest and in such patients intubation is to be preferred; 37.4 per cent recovered after intubation and only 4.2 per cent after tracheotomy. In children over two years gangrene never resulted from the intubation. ED.

2059

Technic for Bacteriologic Diagnosis of Diphtheria. G. WAGNER, *Muench. med. Wchnschr.*, March 4, 1913.

The Conradi-Troch telluride plates are an improvement over the Loeffler because of the greater ease with which the diphtheria colonies are found. They need not, however, be used in conjunction with the Löffler serum.
ED.

2060

Treatment of Diphtheria and Diphtheria Carriers. S. G. WILSON, *N. Orleans Med. and Surg. Jour.*, Sept., 1913.

Abstracted in THE LARYNGOSCOPE, Feb., 1914, p. 148.

2063

Cirsoid Aneurysm of the Auricle. BELLOTI, *L'Osped. Mag.*, Feb., 1913.

Large cirsoid aneurysm of the auricle in boy of 11 years;; not painful but feels hot. The auricle is covered with bluish protuberances; synchronous pulsations with those of radial pulse. Compression of the carotid does not diminish size of tumor. ED.

2064

Multiple Papilloma of Both External Auditory Canals. BLEYL, *Ztschr. f. Ohrenh.*, Bd. 68, Heft 2-3, 1913, p. 176.

In factory worker of 24 years deafness of long standing, itching in ear, and sensation of small swellings in canal. Examination showed small wart-like excrescences occupying the right anterior wall of the cartilaginous portion of tho canal and scattered along the left border. Canal filled with fetid yellowish-white secretion; drum membrane negative. Removal of small growths (15); trichlorid acid applied; no recurrence. Microscopically the tumors showed a similarity to laryngeal papillomata.
ED.

2067

Congenital Malformation of the External Ear, Upper Lip and Palate. L. CASTELLANI, *Prat.-oto-rino-laringoatrica*, March, 1913, p. 62.

Child of 6 years with slight congenital cleft in upper lip. The inner upper incisor tooth had not cut through and the other teeth were irregular. Also cleft in hard and soft palate; partial ankyloblepharon with complete absence of cilia. Atypical clefts of both ear lobules, congenital aural fistula and defect of the cauda helicis and of the upper part of anthelix, and a pronounced projection of anthelix. The author discusses the mechanism of these anomalies and their probable etiology. ED.

2069

Peculiar Case of Multiple Papillomata of Auditory Meatus. P. CITELLI, *Ann. des Mal. de l' Oreille*, No. 10, 1913, p. 297.

The new disease of the auditory meatus described by Citelli is characterized by: (1) the presence of numerous papillomata implanted throughout the canal; (2) a purulent, foul-smelling discharge due to maceration of desquamated epithelium with fermentation of stagnant fluid among the excrescences; and frequently by (3) deafness. The papillomata are pointed; they may originate in canal and thence invade the tympanum or in the meatus and be continually irritated by the discharge from a pre-existing chronic otitis media. The prognosis is good and the surgical treatment relatively easy. Ed.

2070

Traumatic Atresia of the External Auditory Meatus of the Left Ear With Mastoid Complications. Ernst Danziger.

Original contribution to The Laryngoscope, Sept., 1913, p. 948.

2072

Orthygroma Nephriticum, a Hitherto Undescribed Disease of the Ear Lobe. O. Glogau, *Jour. A. M. A.*, Jan. 11, 1913, p. 123.

This name is applied by the author to a case of bilateral elongation of the ear lobe due to edema following acute nephritis. The patient objected to removal of a piece for examination, but Glogau feels that there is an analogy between this condition and othematoma. Ed.

2074

Removal of Fibro-myxoma Which Occluded Auditory Canal; Hemophilia. M. D. Lederman, *Ann. of Otol.*, June, 1913.

The growth appeared in a female, 30 years of age. Previous history of chronic aural suppuration, with large growth removed from same left ear ten or more years ago, when bleeding was checked only after considerable difficulty.

Present examination revealed a growth filling the external auditory meatus, with the free end projecting. Foul-smelling secretion bathed the foreign tissue. No other inflammatory symptoms were found. As the previous history showed the lack of fibrin ferment, calcium lactate was given for four days before attempting the removal of the growth.

The fibrous polyp was removed without difficulty with the aural snare under local anesthesia. For a few minutes after the operation there was but little bleeding. In about ten minutes some oozing of blood was seen which was not controlled by adenalin soaked gauze or pressure. Other remedies were employed locally without success, until 10 ccm. of Mulford's horse-serum were injected into the arm, and though the needle-puncture bled for a few minutes the oozing from the ear ceased in twenty minutes. The next day on attempting to cleanse the ear at the Polyclinic Hospital, where the patient was sent for observation, bleeding reappeared but was checked by packing. Forty-eight hours after the injection large hemorrhagic urticaria appeared over the right thigh and arm which lasted a week causing considerable annoyance because of intense itching, (anaphylaxis). Good results followed the removal of the growth. A. A.

2076

Furunculosis of the External Auditory Canal. Oliver A. Lothrop, *Boston Med. and Surg. Jour.*, Oct. 30, 1913, p. 645.

The author discusses furunculosis of the external auditory meatus and recommends the constant sterilizing of the escaping pus and of the canal wall by the use of alcohol, or alcohol with boric acid. He inserts a wick of cotton or gauze nearly to the drum and filling the lumen. This he saturates with the alcohol solution, and gives some to the patient instructing him to keep the wick wet. This wick is daily changed by the physician. The treatment is continued for a time after apparent cure, to ensure against reinfection. BERRY (MOSHER).

2090

Diseases of the Middle Ear and Mastoid Cells Based upon a Study of 454 Autopsies and 2232 Cases of Diphtheria, Scarlet Fever and Measles.

C. B. C. BORDEN, *Boston Med. and Surg. Jour.*, Feb. 13, 1913.

Because of the remarkably extensive experience and material Borden cites from, this paper becomes an authoritative utterance. From this series of 2232 cases, 11 per cent of the scarlet fever cases showed aural complications, 28 per cent of the measles cases, and only 2.9 per cent of the diphtheria cases. On the other hand, of the cases with fatal termination, 32 per cent of the diphtheria cases had aural complications, 94 per cent of the scarlet fever cases, and 100 per cent of the measles cases; but contrary to expectation the order is reversed when we consider these aural complications as involving the mastoid:—31 per cent of the fatal diphtheria cases showed mastoid involvement, 26 per cent of the scarlet fever cases, and but 14 per cent of the measles cases. Of the 59 fatal cases having mastoiditis, 33 of them were bilateral. There were, strangely, but one infected jugular vein, four cases of septic meningitis, and not a single brain abscess.

The aural discharge in scarlet fever and measles was described as yellow, white, or creamy pus; that in diphtheria as small in amount, thick, tenacious, gummy, gelatinous, or semi-solid. The bacteriological reports showed the usual great variety of infecting organisms, rarely in pure culture. The nasal sinuses were rather frequently involved.

"In measles, middle ear and mastoid symptoms occur during the height of the active process, and adults are particularly liable to mastoiditis. In scarlet fever, middle ear involvement comes at any time during the course of the disease, and is by no means limited to the active stage. Adults are not especially liable to mastoiditis in scarlet fever. In diphtheria, otitis media or mastoiditis are not as active as in scarlet fever or measles, and the diagnosis is far more difficult to make for this reason."

Particularly difficult is it to diagnose these beginning mastoid conditions in young children and especially when under two years of age. The classical symptoms may be all or nearly all absent, and only autopsy tell the attendant of the feared complication. The autopsy records plainly demonstrate that pus may be present in the middle ear or mastoid without swelling of the drum membrane or edema over the mastoid. Newer methods of diagnosis must be resorted to, but have not as yet proved entirely adequate to the need. Of these, it is doubtful whether the x-ray can prove of real and practical service. The Mosher transillumination method seems to offer the best possibilities, but its use calls for greater intimacy and efficiency in the hands of the examiner than has as yet been developed.

Differing from the self-limited infectious diseases, if we have pus confined in the aural cavity or mastoid, a matter of a few hours makes a material difference, as free drainage alone permits the escape of pus and a consequent non-absorption of the injurious toxins which may weigh down the balance in favor of a fatal termination. Hence, when the diagnosis is made, prompt and if necessary frequently repeated remedial measures are indicated. Remedies that will hide symptoms, such as ice bags, are distinctly contra-indicated. Over-conservatism will jeopardize the life of the patient. Experience shows that very sick cases bear ether anesthesia if such is indicated, better than would be expected and far better than the toxins which the confined pus is emptying into the system.

The author adds an interesting theory, that in these cases the middle ear and neighboring cavities may well be the primary focus from which infection spreads into the system. The tonsil has been commonly considered a frequent offender on this score, and the author suggests that the anatomical relationships of the middle-ear cavities are so nearly analagous in their lymph supply, as to favor the thought that many infections are primarily in the middle ear following a "cold," and spread from there direct to the lymph and blood stream and so over the system. BERRY (MOSHER).

2093

Blue Tympanic Membrane. CANEPELE, *Arch. ital. di Otol.*, Jan., 1913, p. 1.

Case 1: Girl of 15 with symptoms of an acute right-sided middle-ear inflammation. Otoscopy showed blue color of tympanic membrane in posterior half while the anterior quadrant presented a grayish color. This blueness disappeared after spontaneous perforation of the drum membrane and was replaced by red color, but later the blueness again appeared.

Case 2: Boy of 16 years who had symptoms of stenosis of the Eustachian tube. The anterior half of the right membrane was reddish and on the margin between the anterior and posterior quadrant there were two blue patches.

As causes Canepele mentions: (1) Forward arching of the jugular bulb; (2) extravasation of blood into tympanum; (3) presence of hyphomycetes; (4) presence of gelatinous exudate in the tympanum; (5) varicose veins in tympanic membrane. ED.

2094

Topography of the Tympanic Cavity. CAVANAUGH, *Ann. of Otol.*, Sept., 1913, p. 699.

The topographical anatomy of the tympanic cavity is exhaustively described; a resume of the development of the temporal bone is given. This is followed by detailed description of measurements of the various diameters of the tympanic cavity, anomalies in size and shape and the relationship of adjacent vital structures. Dehiscences in the tegmen diverticula from the floor, occasional absences of the posterior wall in its upper part and other irregularities of the cavum tympanum are noticed.

The position of the drum membrane and the relationship of the tegmen tympani is emphasized. The ossicles and all vascular nerve and muscle contents of the tympanic cavity are minutely described.

A series of four plates, with numerous illustrations accompanies this exhaustive article. GOLDSTEIN.

2095

Genesis and Significance of Giant Cells Apropos of Some Cases of Polypi in Middle Ear. CIPOLLONE and BELLANCIONI, *Pathologica*, July 1, 1913

Because of their genesis, topography, form, trauma from neighboring tissues and degeneration it is necessary to regard the giant cells as elementary in the degenerative process. ED.

2096

Regeneration of the Membrana Tympani. G. M. COATES.

Original contribution to THE LARYNGOSCOPE, June, 1913, p. 692.

2097

Difference in Prognosis in Meso-tympanal and Epi-tympanal Middle-ear Inflammations. H. COHNSTAEDT, *Ztschr. f. Ohrenh.*, Bd. 69, Heft 3-4, 1913.

The author reports on 630 cases of acute middle-ear suppuration. Of these 61 (9.6 per cent) were epitympanal; antrotomy was performed on 19 (31.1 per cent). Of the 569 meso-tympanal cases 552 (97.1 per cent) recovered without complication; 17 were operated. ED.

2099

Sarcoma of Middle Ear, Especially of Petrous Portion of Temporal Bone. W. DOEDERLEIN, *Arch. f. Ohrenh.*, Bd. 92, Heft 1-2, 1913, p. 124.

This form of tumor is not rare but thus far, according to the author, the published reports have been incomplete without histological data. Doederlein contributes detailed reports of two cases:

Case 1: Woman, of 37 years, in whom the tumor had destroyed a portion of the vestibule and cochlea. Post-mortem microscopic findings showed tumor of giant cells.

Case 2: Child of 2 years in whom a petro-mastoid operation had been performed. Cicatrization bad; irregular fleshy papules indicative of syphilis. Wassermann positive, but salvarsan injection produced no improvement. Later a diagnosis of fibro-sarcoma was made. No autopsy permitted. ED.

2102

Acute Lesion of the Tympanic Membrane Due to the Use of the Telephone Receiver. E. FABBRI, *Boll. delle Mal. dell' Orecchio*, March, 1913

Abstracted in THE LARYNGOSCOPE, Dec., 1913, p. 1148.

2103

Middle-ear Suppuration and Novoform. M. FALTA, *Monatschr. f. Ohrenh.*, Heft 9, 1913, p. 1182.

The author reports five cases in which novoform was used with excellent results. Falta feels that this drug is non-poisonous, it does not irritate the mucosa, decrease secretion, nor produce retention by forming clumps with the secretion. It is also very hygroscopic. Ed.

2105

Blue Tympanic Membrane. L. Fornari, *Prat. oto-rhino-laringoiatrica*, Nov. 30, 1913, p. 282.

Case of a man of 39 years. The blueness of the membrane was due to a hematoma which resulted from repeated syringing of ear for removal of cerumen. Ed.

2106

Determining Factors in Tinnitus Aurium. E. P. Fowler.

Original contribution to The Laryngoscope, March, 1913, p. 182.

2107

Fatal Mediastinitis Due to Retro-pharyngeal Abscess Following Acute Purulent Otitis Media. S. Gatscher, *Monatschr. f. Ohrenh.*, No. 5, 1913, p. 679.

Patient entered hospital five weeks after attack of influenzal otitis; three days later antrotomy because of burrowing-abscess. The following day tense infiltration of floor of mouth involving epiglottis; after a day laryngeal stenosis. Mediastinotomy disclosed fact that pus had traveled from retro-pharyngeal cavity anteriorly around base of tongue to anterior portion of larynx and thence to right side of mediastinum Death on following night. Ed.

2108

Pyelitis and Otitis Media in Infants. F. Glaser and H. Fliess, *Deut. med. Wchnschr.*, July 24, 1913.

Abstracted in The Laryngoscope, Nov., 1913, p. 1058.

2111

Suppuration of Middle Ear and Amyloid Degeneration. F. Grossmann, *Passows Beitr.*, Bd. 6, Heft 3, 1913, p. 252.

Case of acute suppurative otitis media with sinus thrombosis (operated) and subsequent peri-bulbar abscess and pyemia. Autopsy showed pronounced amyloid degeneration in spleen, liver and intestines. The author suggests this as a possibly frequent complication and urges that post-mortem examinations in such cases be not limited to the head. Ed.

2112

Optic Disc in Purulent Otitic Disease and its Complications. E. Gruening, *Arch f. Ophth.*, March, 1913.

Gruening feels that too little attention is paid to optic neuritis and choped disc—two pathologic conditions which occasionally complicate purulent otitic affections. Their exact differentiation has an important bearing on the diagnosis, prognosis and treatment. Choped disc is the ophthalmoscopic manifestation of increased intracranial pressure and its early recognition is essential. Ed.

2114

Perforated Ear Drum Possibly Responsible for Sudden Death in Water. A. GUETTICH, *Med. Klinik*, Nov. 16, 1913.

Passow has already called attention to a possible temperature irritation in the internal ear just from coldness of water which results in irresistible vomiting or collapse under the water. The force of the water in diving or a wave dashing against the ear may burst a weakened tympanic membrane. Persons with perforated membrane should be warned against diving and bathing in too cold water; their ears should be plugged with oiled cotton. ED.

2120

Acute Otitis Media. G. C. KNEEDLER, *Pittsburgh Med. Jour.*, April, 1913, p. 21.

In this paper Kneedler discusses the exciting causes, external and internal influences, prognosis and treatment of acute otitis media from the general practitioner's view-point. ED.

2123

Primary Tuberculosis of the Middle Ear. C. H. LONG.

Original contribution to THE LARYNGOSCOPE, June, 1913, p. 700.

2126

Complications of Acute Middle-ear Suppuration. G. W. MACKENZIE, *Hahnemann. Monthly*, May, 1913.

Mackenzie points out the more frequent complications of acute middle-ear suppuration, some of which are often considered of minor importance but which lead to major operations and urges care in their early recognition. ED.

2127

Suggestions to the General Practitioner Concerning Acute Middle-ear Suppuration. G. W. MACKENZIE, *Hahnenmann Monthly*, March, 1913, p. 175.

Mackenzie discusses etiology, pathology, course, symptoms, otoscopic findings and treatment of acute middle-ear suppuration. ED.

2128

Reflex Contraction of the Tensor Tympani in the Human. E. MANGOLD and A. ECKSTEIN, *Arch. f. gesam. Physiol.*, Bd. 152, Heft 11-12, 1913, p. 589.

In a series of selected patients the authors report observations on the voluntary contraction of the tensor tympani as compared with reflex contraction of this muscle and conclude that such reflex tensor contractions produce much slighter excursions of the membrana tympani as indicated by a lesser volume of air measured in the auditory canal by photomanometry.

In a series of tuning-fork experiments the reflex tensor contractions varied in intensity with the pitch and difference in irritability in the tone produced. Tensor contractions do not guard against unpleasant tone sensations. Subjective after-effects of intense and high-pitched tone stimuli are not dependent on continuous and active tensor contractions.

GOLDSTEIN.

2145

Acute Suppurative Otitis Media Due to Bacillus Typhosus. J. J. THOMAS and D. A. PRENDERGAST, *Cleveland Med. Jour.*, May, 1913.

Typhoid bacillus found in pus from middle-ear. Ten days after paracentesis the suppuration ceased, but two weeks later meningeal symptoms developed. Lumbar puncture fluid showed streptococci. Fatal due to streptococcic meningitis. ED.

2146

Acute and Chronic Suppuration of the Middle Ear. G. L. TOBEY, *Boston Med. and Surgical Jour.*, Dec. 11, 1913, p. 871.

The paper is introduced with a reference to the greater importance now being attached to otitic suppuration and is presented "not as a scientific thesis, but merely to bring to your attention certain points in the recognition, treatment and prognosis of the aural suppurations, which may be of value to you in the practice of general medicine."

Of more especial interest to otologists are some of the data referred to. The author finds "at least 90 per cent of aural infections are secondary to a primary infection of the nose or throat;" that "acute otitis occurs in 20 per cent of the cases in scarlet fever, in 10 per cent of the cases of diphtheria, and in 7 to 8 per cent of the cases of measles;" and that "in cases of lateral sinus thrombosis, ligation of the internal jugular vein and the evacuation of the lateral sinus is followed in 80 per cent of the cases by recovery. BERRY (MOSHER.)

2157

Direct Dilatation of the Eustachian Tube. GIERSZEWSKI, *Deut. med. Wchnschr*, June 19, 1913.

Six cases are roported in which the author dilated the tube by means of a metal dilator made the exact size and shape of the tube. Yankauer and Laval have employed similar technic. ED.

2159

Relation of Eustachian Tube to Chronic Catarrhal Otitis Media. HAROLD HAYS, *N. Y. Med. Jour.*, Feb. 15, 1913.

According to Hays' observation there is narrowing of the Eustachian tube in 95 per cent of the cases usually due to changes in the upper air tract. Hays' treatment consists in cocainizing the entire tube and inserting a specially devised, thin sound which he leaves *in situ* for half an hour. After this dilation is regularly undertaken, and if this is ineffective, various medications are injected into the middle ear (10 per cent argyrol solution, etc.). ED.

2162

New Method of Dilating Tube by the Direct Method. A. VON GYERGYAI, *Orvosi Hetilap*, No. 17, 1913; *Rev. hebd. de Laryngol.*, Sept. 27, 1913; and *Deut. med. Wchnschr.*, Vol. 25, 1913.

From casts of the Eustachian tube obtained post-mortem, the author had metal dilators made which, used in conjunction with his instrument previously described, enable him to treat the tube visually. He reports good results in the treatment of six patients. ED.

2163

Direct Examination of the Eustachian Tube and Naso-pharynx. J. W. Wood, *Jour. of Laryngol.*, Nov., 1913, p. 568.

By means of the Holmes' naso-pharyngoscope, post-nasal mirror, Eustachian catheter and bougie, and finger, an analysis was made of the naso-pharyngeal findings in 650 cases, mostly aural. The subject-matter is classified into: 1. Deformities and abnormalities of the mouth of the tube. 2. Injuries, paralysis and foreign bodies. 3. Inflammatory conditions; (a) acute simple salpingitis, (b) subacute salpingitis, (c) acute edematous salpingitis, (d) simple chronic salpingitis, (e) chronic hypertrophic salpingitis, (f) chronic atrophic salpingitis, (g) chronic granular salpingitis. 4. New growths, simple and malignant. 5. Adenoids. 6. Various conditions, varicose veins. Ed.

2169

Injuries of the Labyrinth. J. Auerbach.

Original contribution to The Laryngoscope, Sept., 1913, p. 950.

2178

Bone-conduction in Lues. Oscar Beck, *Monatschr. f. Ohrenh.*, Heft 8, 1913.

Beck is famous the world over through the investigations he made on the acoustic and static apparatus of luetic patients. He is considered such an authority in this special work of our field that at the Dermatological Clinic of the Wiener Allgemeines Krankenhaus no salvarsan injection is made before Beck examines both the static and acoustic apparatus and declares salvarsan indicated in the respective case.

In this article Beck describes a new early symptom of lues that may be present even before the Wassermann test is positive. When, in an otherwise normal ear, the bone-conduction is considerably shortened the case is one of lues. He reports a large series of syphilitic cases where this symptom was almost regularly present and mentions two cases where it helped in establishing the diagnosis of lues, long before any other syphilitic symptoms had appeared. This characteristic shortening of the bone-conduction usually occurs at a time when the localized syphilis develops into a general one, but it may be met with at an earlier stage of the disease. The cause of this shortening of the bone-conduction is the increased intra-cranial and intra-spinal pressure. This increased pressure causes simultaneously dizziness and disturbances of equilibrium such as have been frequently described by the writer.

The writer succeeded in making exact measurements of the decrease in bone-conduction by Prof. Urbantschitsch's electrically vibrating tuning fork. The time seems to be near when the invasion of syphilis may be "heard" by the otologist long before its symptoms are seen by the dermatologist. Glogau.

2179

Fistula Symptoms in Non-suppurative Affections of the Auditory Apparatus. O. Beck, *Ann. des Mal. de l'Oreille*, No. 9, 1913, p. 229.

Report of two cases in which compression and aspiration of air in the external auditory canal produced ocular movements: the one, a case of hereditary syphilis, showed by compression a slight deviation of the eyes, the other, one of acquired syphilis, presented nystagmus with rotatory and horizontal components. The author concludes that in syphilis there are definite labyrinthine complications and that changes in this organ affect the endolymph. Ed.

2180

Comparative Anatomy of the Membranous Labyrinth. C. E. BENJAMINS, *Ztschr. f. Ohrenh*, Bd. 68, Heft 2, Bd. 69, Heft 3, 1913; and *Nederlandsch. Tijdschr. v. Geneesk.*, June 7, 1913.

Benjamins offers proof of the existence of a fourth crista in the labyrinth of vertebrate animals (including man), which is located in the inferior sinus of the utricle, near the ampulla of the posterior semi-circular canal. Retzius first studied this small organ but he called it the "macula neglecta." The author proves that the organ is not a macula but a crista; in lower vertebrates it is a well-developed fourth crista; in man it is more or less rudimentary. Ed.

2183

Tumor of the Acoustic Nerve. J. BERLSTEIN and NOWICKI, *Monatschr. f. Ohrenh.*, Heft 3, 1913, p. 415.

The clinical history is carefully recorded as well as the hearing test findings. The tumor was as large as an egg and seemed to develop from the auditory meatus. Atrophy of cochlea and vestibular nerve with all the clinical sequelae of these lesions; facial nerve only slightly attenuated and from the clinical manifestations seemed to be intact. The trigeminus and abducens were not affected. Ed.

2191

Localization of Auditory Center. W. BOYD and J. S. HOPWOOD, *Lancet*, June 14, 1913.

During life the patient's hearing was apparently perfect though he had auditory hallucinations. At autopsy it was found that greater part of the left temporal lobe of the left cerebral hemisphere was replaced by a large cyst containing a clear colorless fluid. The destruction was very extensive, involving whole of the temporal lobe except the third and anterior extremities of the second and first convolutions, the latter bearing the anterior gyrus of Heschl on its upper surface; arteriosclerosis of vessels at the base of the brain. Sections of brain examined, but no abnormalities found. Ed.

2192

Labyrinthitis After Three Injections of Salvarsan. BRINDEL, *Jour. de Med. de Bordeaux*, Dec. 14, 1913.

Case of labyrinthine deafness in man who had received three intravenous injections of salvarsan three days after syphilitic infection. The deafness was unusual in that sharp sounds were heard but not deep ones. The author feels that the deafness resulted from the therapy. Ed.

2202

Diagnosis of Suppuration of the Labyrinth. G. M. COATES, Trans. Phila. Laryngol. Soc., Feb. 18, 1913.

Abstracted in THE LARYNGOSCOPE, Nov., 1913, p. 1115.

2212

Case of Syphilitic Labyrinthitis. EVELY, *La Policlin.*, Feb. 15, 1913, p. 58.

After intensive injections, facial paralysis and left-sided deafness developed; fourteen days later labyrinthine symptoms and right-sided deafness. The author raises the question as to whether salvarsan affects the auricular nerve or whether mercurial treatment should be instituted.

ED.

2214

Local Autogenous Temperature Variations a Cause of Labyrinthine Vertigo. E. P. FOWLER, *Med. Rec.*, June 21, 1913.

Abstracted in THE LARYNGOSCOPE, Nov., 1913, p. 1058.

2216

Injurious Effect of Loud Noises on the Organ of Hearing. H. FRIEDENWALD, *Bull. Med. and Chir. Fac. of Md.*, Jan., 1913.

Abstracted in THE LARYNGOSCOPE, Nov., 1913, p. 1060.

2217

Vertigo. P. FRIEDRICH.

Original contribution to THE LARYNGOSCOPE, Aug., 1913, p. 825.

2218

Turning Test. H. M. GODDARD, Trans. Phila. Laryngol. Soc., Feb. 18, 1913.

Abstracted in THE LARYNGOSCOPE, Nov., 1913, p. 1114.

2220

Otosclerosis and its Relation to Tuberculosis. G. GRADENIGO, *Monatschr. f. Ohrenh.*, Heft 7, 1913, p. 901.

It is probable that hereditary syphilis, family tuberculosis, and arthritis, degenerative and trophic conditions are often grouped together under the name of otosclerosis. Though there are seldom tubercular symptoms in the otosclerotic patient yet, according to the author, careful interrogation will ascertain that some members of the family have died of it. There is a tubercular rheumatism of an acute, subacute and chronic form and to the latter of these the author attributes the relationship between otosclerosis and rheumatism.

ED.

2221

Suggestions in Acoumetry. G. GRADENIGO.

Original contribution to THE LARYNGOSCOPE, July, 1913, p. 770.

2222

Gradenigo's Syndrome. One Case-report and an Analysis of the Published Cases. H. B. GRAHAM.

Original contribution to THE LARYNGOSCOPE, Dec., 1913, p. 1146.

2226

Brief Consideration of Certain Recent Views Regarding Otosclerosis. T. Harris.

Original contribution to The Laryngoscope, Aug., 1913, p. 801.

2227

Meniere's Symptom Complex. H. Hastings, *Cal. State Jour. of Med.*, Sept., 1913, p. 353.

Cases presenting Meniere's symptom-complex are the result of diseased conditions of the blood vessels supplying the labyrinth or of disease of the right nerve including its end-organs in the labyrinth. One case (apoplectic form) occurred during childbirth; another (apoplectic form) was due to atrophy of the cochlear nerve and did not result in permanent injury to the vestibular nerve; the third case was one of partial deafness with no vestibular changes; the fourth, a mild form, was probably a tobacco neuritis; the fifth was one of bilateral nerve-deafness with dizzideafness with partial restoration; the ninth, nerve-deafness, (apoplectic form) there was complete deafness; in the seventh, sudden deafness with dizziness and vomiting; the eighth was a case of sudden, complete nervedeafness with partial restoration, the ninth, nerve-deafness, (apoplectic form) and ocular paralysis; the tenth, almost complete deafness with dizziness due to nervous prostration; the eleventh, (apoplectic form) with cochlear nerve atrophy; the twelfth, one of nerve-deafness associated with nervous prostration; and the last, one of atrophy of both cochlear nerves with history of hemorrhages and dizziness. The etiology and therapy is discussed. Ed.

2230

Differential Diagnosis and Treatment of Acute Labyrinthitis. L. L. Henninger.

Original contribution to The Laryngoscope, July, 1913, p. 781.

2236

Sympathetic Nystagmus in Erysipelas. Hirsch, *Deut. med. Wchnschr.*, No. 7, 1913, p. 315.

With a functionally intact vestibule horizontal rotatory nystagmus is a usual concomitant of erysipelas. Therefore it is of diagnostic value especially in cases in which the erysipelas is localized to the scalp and in which meningeal irritation, vomiting, rigor, and delirium appear and which in the presence of middle-ear suppuration and undeveloped erysipelatous symptoms may point to intra-cranial complications. Ed.

2237

Changes in Ear Experimentally Produced by Sound. H. Hoessli, *Intern. Zntrlbl. f. Ohrenh.*, Bd. 11, Heft 8, 1913, p. 303.

The human labyrinth cannot be used in such experiments because of the delay in the autopsy and also because the labyrinth is so deeply situated that the fixation fluid cannot reach it. Therefore the experimentation has been limited to animals. Hoessli concludes that sounds by air and not by bone conduction produce labyrinthine changes and that persons exposed professionally to such noises cannot escape injury. Ed.

2240

Nystagmus Produced by Galvanism of Individual Semi-circular Canals. L. M. HUBBY.

Original contribution to THE LARYNGOSCOPE, Feb., 1913, p. 126.

2243

Meniere's Symptom-complex. S. J. KOPETZKY, *N. Y. Med. Jour.*, May 24, 1913.

The symptom-complex consists of a sudden attack of deafness, tinnitus and vertigo. This trio may also be caused by hysteria, by the various abdominal diseases, floating kidney, gall-stones, stones in kidneys and liver trouble. ED.

2254

Some Curable Affections of the Acoustic Nerve. A. LEWY.

Original contribution to THE LARYNGOSCOPE, March, 1913, p. 190.

2256

Acute Labyrinth Destruction with Complicating Erysipelas Following Mastoid Operation. G. W. MACKENZIE, *Jour. of Ophthal., Otol. and Laryngol.*, Aug., 1913, p. 307.

The author gives a detailed case-history. The erysipelas was finally controlled by the use of phylacogen and the patient recovered from the severe infection of the middle-ear and mastoid but with a destroyed inner ear. ED.

2264

Physiologic Researches on the Hearing of Dogs. OUSIEVITCH, *Comptes rendus de l'Acad. imperiale russe de Med. Mil.*, Nos. 3-4, 1913.

The ear of a dog is capable of distinguishing the beats of the metronometer, between that with 100 to 104 beats and that of 96 to 100. In two days' time, however, this power of differentiation is again lost. ED.

2267

Development of Membrana Tectoria. C. W. PRENTISS, *Am. Jour. of Anat.*, May, 1913.

Extensive study on the fetus and new-born convinces the author that the membrane arises as a thin cuticular plate which is first developed over the free ends of the columnar cells forming the greater inner epithelial thickening of the basal cochlear wall. It is a delicate chambered cuticular structure, co-extensive with the spiral organ. The membrana being much thinner and narrower in the basal turns than in the apical region different portions of it probably respond to sounds of different pitch. In this sense it may act as a resonator. ED.

2269

Hallucinations of Hearing and Diseases of the Ear. J. H. RHEIN, *N. Y. Med. Jour.*, June 14, 1913, p. 1236.

Three cases of hallucinations of hearing associated with disturbances in the peripheral auditory apparatus are recorded. The hallucinations were manifestations of mental disease. Two of the patients were 65 and

69 years old respectively, and therefore arterial changes in the brain were a factor. Undoubtedly this phenomenon is an expression of unstable psychic equilibrium. History of nervous disease in the ancestry is usually given. Ed.

2277

Anatomy of the Static Labyrinth. M. Strouse, Trans. Phila. Laryngol. Soc., Feb. 18, 1913.

Abstracted in The Laryngoscope, Nov., 1913, p. 1112.

2290

Nystagmus in Febrile Diseases. E. Von Czyhlarz, *Berl. klin. Wchnschr.*, Jan. 20, 1913.

In a large number of diseases starting suddenly with high fever the author simultaneously observed nystagmus—in erysipelas, croupous pneumonia, in severe cases of articular rheumatism and in influenza. In cases of typhoid the nystagmus appeared only after two weeks but remained after the fever disappeared. In cases of tuberculosis in which there was high fever, nystagmus was occasionally present though less frequently than in other febrile affections. The nystagmus is regarded as a toxic symptom in these cases. Ed.

2300

Case of Total Deafness Following Dose of Quinin. M. J. Ballin, *N. Y. Med. Jour.*, May 24, 1913.

Abstracted in The Laryngoscope, Sept., 1913, p. 912.

2301

Restoration of Hearing After a Year's Deafness. R. Barany, *Wr. klin. Wchnschr.*, Jan. 23, 1913, and *Arch. intern. de Laryngol.*, March-April, 1913, p. 384.

Thirty-five cases of Barany's syndrome in which deafness, headache, vertigo and tinnitus suggested accumulation and retention of fluid in the cerebello-pontine angle have been studied. When the fluid is released either by lumbar puncture or by increasing the pressure through atropin, etc., the disturbances cease and the hearing becomes normal. Case reports are appended. Ed.

2303

Montessori Models. L. M. Bates, *Am. Ann. of Deaf*, Jan., 1913, p. 16.

This article is a review of Dr. Montessori's book "The Montessori Method." Conciseness and simplicity are the keynotes of the method. Ed.

2307

Publicity for Education of Deaf. L. M. Bemis, *Volta Rev.*, April, 1913, p. 27.

The author reviews some of the articles on the education of the deaf which have appeared during recent years in magazines. Ed

2309

Histological Examination of Case of Congenital Deafness. G. BRUEHL, *Passows Beitr.*, Bd. 7, Heft 1, 1913, p. 19.

Patient, 35 years old, was educated in a deaf-mute school until age of 10 when she had an attack of measles, retrogressed and became idiotic. Also paralysis of leg. Nerve specialist diagnosed the case as one of progressive degenerative affection of the cerebellum due to congenital "anlage." Autopsy findings: Pronounced hyperplasia of the pons and cerebellum with excessive development of the neuroglia. On the posterior surfaces of petrous portion of temporal bone semi-circular bony tubercles. Circular hyperostoses on posterior and anterior borders of the anterior superior surfaces of the pyramids. One small exostosis on inner surface of squama. Auditory canal, tympanic membrane and left tympanum normal; in right tympanum thickened and cystic mucosa. Vestibule, ossicles and semi-circular canals normal; almost symmetrical epithelial atrophy in cochlea and hypoplasia in spiral ganglion, in stria and in auditory nerves. No symptoms of inflammation or changes in membranous labyrinth. Changes in organ of Corti. ED.

2310

Talking Motion Pictures as an Aid to Lip-readers. M. E. BRUHN, *Volta Rev.*, July, 1913, p. 179.

Though moving pictures are not made for the hard-of-hearing, yet they give excellent practice in acquiring proficiency in lip-reading and give the eye the proper training. ED.

2311

Teaching Lip-reading to the Adult Deaf as a Profession: Its Possibilities and Future. M. E. BRUHN, *Volta Rev.*, March, 1913, p. 718.

Miss Bruhn points out the unlimited possibilities in this field and advocates the Mueller-Walle method. ED.

2314

Deafness Following the Use of Salvarsan. C. A. CLAPP, *Jour. A. M. A.*, March 8, 1913, p. 742.

A month after the intravenous injection of salvarsan (0.6 gm.) the patient suffered a severe attack of giddiness, hearing reduced to watch at 4 inches in the right and to contact in the left ear; left side of face slightly flat; Barany caloric test negative on left, slight functioning on right. Potassium iodid increased giddiness which, however, improved after administration of pilocarpin epidermically and purgation. After several months of iodid therapy hearing improved to watch at 3 inches in each ear. Equilibrium still disturbed; slight facial paralysis has disappeared. ED.

2321

Training Muscles of the Ear in Treatment of Deafness. FERNET, *Bull. de l'Acad. de Med.*, Oct. 14, 1913, p. 209.

Benefit by this treatment is due to improved circulation and better nourishment, better adaptation to the function progressively acquired by practice, and to the training of the auxiliary organs which sustain and re-enforce the lagging organ. Children are often able to exercise their ear-muscles and adults undoubtedly have lost this faculty for want of exercise. In unilateral deafness the patient must be trained to listen with his deaf ear so that the little hearing-power left does not decrease but increase. Three sets of muscles are trained: those of face, those of scalp and auricle, and those of the Eustachian tube. Excellent results have been attained with this therapy. ED.

2330

Comparative Investigations of Acuity of Hearing in Blind and Seeing.

F. H. HOEFTER, *Passows Beitr.*, Bd. 6, Heft 4-6, 1913, p. 302.

The blind do not possess a more acute sense of hearing, nor do they acquire one, but they have, however, a greater power of concentration. Even in the presence of tinnitus the blind, too, have the better sense of orientation. ED.

2345

Sporadic Congenital Deafness and Deafness from Syphilis.

KERR LOVE, *Glasgow Med. Jour.*, Feb.-March, 1913.

This important paper took the form of a lecture delivered under the auspices of the National Bureau for the Welfare of the Deaf.

As is the case with other forms of deafness this type is met with mainly among the poorest classes. The author's enquiries show that the social status of the families from which the deaf children of Glasgow come is for the most part that of the house of one apartment. The one-apartment standard of living means not only insufficient air-supply, food, and clothing, but untreated syphilitic disease, uncontrolled use of alcohol, and carelessness in up-bringing of children. It results in an enormously high child death-rate, and in a deaf-mute rate which is never approached in the houses of the well-to-do.

The trees are given of 21 families in which syphilis was the cause of deafness in one or more members. In many of the families the Wassermann test was carried out in every living child and in some of them in the father and mother also. In the 21 families there were 172 pregnancies, 75 miscarriages and deaths, the latter nearly all in the first or second years, and 31 deaf or blind children. Of the remaining 66 some showed the Wassermann reaction, and might well become deaf later. The most common cause of death amonst these syphilitic children was meningitis.

In discussing the prevention of deafness of this type the author gives first place to notification of syphilis when it appears in children, and the immediate treatment of both mother and child. This might be done in connection with maternity benefit under the National Insurance Act, the commissioners insisting on a certificate of the cause of death in every case of still-birth or death shortly after birth.

The Wassermann reaction, applied in 157 cases, details of which are given, established (the author believes, for the first time) the fact that congenital deafness is sometimes due to syphilis. This was clearly the case more frequently than was proved by the reaction itself, for when no active process is going on the test sometimes gives a negative result in undoubted cases of syphilis. In some cases of congenital deafness of syphilitic origin the active disease has probably come to an end before birth, and as the patients, in other respects healthy, have not been examined until many years later, it is not surprising that a considerable proportion show a negative reaction. The results as a whole indicate that syphilis is the causal factor in a considerable number of cases of sporadic congenital deafness, and justify the conclusion that the part which syphilis plays in the production of this condition may be much greater than can be detected by such a method as the Wassermann test carried out long after the disease has ceased to be active.

In sporadic congenital deafness there is another group of cases which, when the family is taken as a unit, exhibit a symptom-complex,—feeble-mindedness, epilepsy, and deafness; attending these families there is a cause-complex,—poverty, over-crowding, alcoholism, and untreated syphilis. GUTHRIE.

2346

Early Home Treatment of the Deaf Child. G. HUDSON-MAKUEN. Original contribution to THE LARYNGOSCOPE, Feb., 1913, p. 116.

2347

Prevention of Deafness. G. HUDSON-MAKUEN, N. Y. *Med. Jour.*, Aug. 16, 1913, p. 305.

For the prevention of deafness the eugenist, hygienist and legislator should co-operate. Marriage among families with a history of deaf-mutism should be forbidden; acquired deafness should receive the joint attention of the general practitioner and of the specialist; all school-children should be carefully examined; and attention called to the relation of syphilis to deafness in the descendants. ED.

2348

Enhancing Auditory Acuity by Psychologic Methods. J. W. A. MALONEY, N. Y. *Med. Jour.*, May 24, 1913.

Every case of deafness should be carefully studied to ascertain if there are any tones still audible. If there are, a tone-chart should be made and the patient blind-folded while the audible tones are reiterated in his ear, at first loud and later with less intensity. Soon the ear will be educated and a serviceable degree of hearing re-established. ED.

2352

Deafness Following Administration of Salvarsan. MENEAU, *Jour. de Med. de Bordeaux*, Dec. 21, 1913.

Apropos of his work in labyrinthitis following salvarsan, Meneau discusses deafness following the administration of "606" and reviews three illustrative cases found in the literature. ED.

2363

End-results of Auditory Re-education. A. RAOULT, *Arch. intern. de Laryngol.*, July-Oct., 1913.

Histories of thirty-five cases are reviewed, seventeen from the author's own practice. Some of the patients thought there was no improvement but on actual examination distinct improvement was noted. He states that in the majority of the cases in which the electro-phonoide of Zuend-Burguet is used improvement after cessation of treatment was permanent or even progressed. In the aged it is, however, often necessary to resume the treatments after a period of rest. Ed.

2369

From the Abbe de l'Epee to Bezold. H. Schroeder, *Ztschr. f. Ohrenh.*, Bd. 67, Heft 3-4, 1913.

While this article does not contain any original work, it is nevertheless of great value in as much as it enlightens the reader on the history and the present stand of the education of the deafmutes in Germany. Glogau.

2386

Preventable Deafness. W. M. Tomlinson, *Med. Rec.*, Sept. 27, 1913.

The usual precautionary suggestions as to the care of the nasal, post-nasal and pharyngeal lesions is advised. The author's personal opinion is that 75 per cent of the adenoid cases have aural involvement. With recent improvements in the technic of Eustachian maneuvers, better results are hoped for. Lederman.

2391

The Deaf. Editorial. J. D. Wright.

Original contribution to The Laryngoscope, Aug., 1913, p. 867.

2396

Sounds in the Ear. E. Botella, *Semana Med.*, Feb. 20, 1913.

Case 1: In an anemic child of 6 years, the parents noticed a moaning sound in the mastoid region, synchronous with the pulse which disappeared on compression of the carotid artery. Cod-liver oil improved the anemia and the sound disappeared.

Case 2: Man of 32 complained of sounds in his ear during last three months which only ceased when the head was bent to that side. Others could hear these sounds; they seemed to be located in the internal carotid region. Ed.

2397

Otorrhagia and Epilepsy. C. Canestro, *Arch. intern. de Laryngol.*, May-June, 1913, p. 778.

Woman of 35 years. During epileptic attack subconjunctival hemorrhage and also slight hemorrhage from left ear. Examination revealed on posterior wall of external auditory canal traces of blood crusts and a small, dark-red hematoma. The hematoma opened when the speculum was inserted; it contained bloody fluid. Tympanic membrane and hearing normal; no sensory disturbance nor tinnitus. Right ear normal. During subsequent epileptic attacks no recurrence of hemorrhage. Hysteria and trauma excluded. Hemorrhage due to cramping of respiratory muscles during attack which produced venous stasis. Ed.

2398

The Sarcofaga Nurus, a New Species of Fly the Cause of Myiosis of the Ear. T. Cerruti, *Rev. Med. del Rosario*, Sept., 1913.

During the summer the author observed eight cases of myiosis, five of which were in the nose and three in the ear. In four cases he ascertained that the myiosis was due to larva of the compsomia macellaria, but in one case he found the hitherto undescribed sarcofaga nurus to be the cause. In cases with otorrhea as a complication, living larva may be found by noting the irregular flow of the secretion in contra-distinction to the usual rhythmical flow. Ed.

2400

Hemorrhage from the Ear. F. Clements, *Passows Beitr.*, Bd. 6, Heft 2, 1913, p. 136.

The author presents an exhaustive article on hemorrhage from the ear in which he records as completely as the bibliographical facilities permit, the data of all of this unusual type of hemorrhage.

He concludes the article with a detailed clinical report of the case of a boy, seven years old, in whom a profuse aural hemorrhage was suddenly developed; this hemorrhage extended over a period of about six weeks, with ultimate recovery. While the source of hemorrhage cannot be absolutely fixed the author thinks it probable that same was located in the superior end of the jugular vein, perhaps even from the bulb and that this erosion of the venous wall was perhaps induced by an adenitis of tubercular character. The history of the case developed the fact that the grandfather (maternal) had died of tuberculosis and that the mother was also tubercular. Goldstein.

2416

Gun-shot Wound in Ear. K. Kirchner, *Monatschr. f. Ohrenh.*, Heft 1, 1913, p. 7.

Abstracted in The Laryngoscope, Dec., 1913, p. 1177.

2417

Ear-findings in Rachitis and Their Significance. L. Komendantow, *Rev. mens. des Mal. de l'Oreille*, Jan., 1913.

From experience the author concludes that rachitis has a very untoward effect on the hearing function and is similar to otosclerosis. Ed.

2420

Otitis and Eclampsia. O. Kutvirt, *Casopis lekarno ceskych*, No. 21, 1913, p. 27.

Kutviet reports on an observation of eleven cases in infants, in each of whom middle-ear suppuration was present. The attacks of eclampsia usually ceased after the onset of the suppuration. After the first three fatalities the author carefully examined the ears in every case of eclampsia and performed paracentesis. Four of the eight remaining cases recovered. After the paracentesis the attacks of eclampsia ceased. The author feels that otitis is an important etiological factor in eclampsia.

Ed.

2425

Scarlet Fever and the Ear. P. MANASSE, *Monatschr. f. Kinderh.*, July, 1913, p. 59.

Manasse points out the frequency of ear complication in scarlet fever and the two types of scarlatinal otitis: 1. Ordinary mild inflammation which occurs where there is little or no throat trouble. 2. Scarlatino-diphtheritic or necrotic otitis due to the same specific cause as the scarlet fever. It is very severe, often causing extensive necrosis of the soft parts and bones and almost always resulting in defective hearing or in total deafness. In the later case the throat should receive very careful attention to prevent infection spreading from throat to ear. Manasse discourses on the care of the ear in otitis. Operative treatment should only be undertaken when absolutely necessary. ED.

2428

Morphology of Ear and Theory of Hearing. M. MEYER, *Arch. f. gesam Physiol.*, Bd. 153, Heft 5-7, 1913, p. 369.

Meyer analyzes again his theory of hearing which is contrary to that of Helmholtz. He also refutes, by twenty-two illustrations, Brocci's contention that his theory does not take into consideration the morphological peculiarities of the sound receiving organ. ED.

2441

Case of Atrophy of Ear, Complicated by Malformation of Cranium and Atrophy of Facial Nerve. N. SACK, *Monatschr. f. Ohrenh.*, Heft 7. 1913, p. 908.

Case of congenital malformation of external auricle in which the middle-ear was most likely also malformed, but in which the labyrinth was normal. There were also defects in cranium and vertebral column, with paralysis of facial nerve probably due to peripheral causes. ED.

2448

Significance of Ear-ache. IRVING SOBOKY, *Boston Med. and Surg. Jour.*, Feb. 26, 1913, p. 317.

A plea to the practitioner to attach more significance to the various forms of otalgia coming under his observation. BERRY (MOSHER).

2450

Otology from Medical Point of View. H. N. SPENCER, *N. Y. Med. Jour.*, March 1, 1913.

In a short paper Spencer emphasizes the necessity for the otologist to make frequent examination of the urine and of the blood. He holds that too little consideration is given to internal medicine in diseases of the nose and ear. ED.

2460

Influence of Sounds of Different Pitch, Duration and Intensity in the Production of Auditory Fatigue. W. A. WELLS.

Original contribution to THE LARYNGOSCOPE, Oct., 1913, p. 989.

2461

Measurement of Auditory Acuity. W. A. WELLS, *Jour. A. M. A.*, Sept. 27, 1913, p. 1239.

Wells points out the difficulties and lack of accurate methods of testing the hearing, qualitative and quantitative and shows the deficiences in the various methods in vogue. There is great need of an exact system and an instrument capable of producing all the notes of the scale from the highest to the lowest, in pure tones free from harmonics and capable of giving these notes in intensities readily measurable and varying from a point below the threshold of excitation of the most sensitive hearing up to a degree necessary to awake sensation in persons suffering from the most profound deafness. Moreover, in order that such an apparatus my deserve universal acceptation, it must be possible to construct as many others as are wanted of the same type, each constant for itself and precisely similar to the others. It is only then that we can hope to make it available for a uniform notation comparable among different observers. ED.

2467

Scarlet-red in Otology. ALLAN, *Therap. Mag.*, Jan., 1913.

The author has had very good results with scarlet-red in incipient retro-auricular affections subsequent to acute mastoiditis. The salve, placed on the edges of the wound, stimulates the growth of the epidermis and the period of time necessary for the cutaneous reunion is greatly curtailed. ED.

2473

Suction Hyperemia in Otology. D. E. HOTELLA, *Sem. med.*, March 27, 1913; and *Bol. de Laryngol.*, April-June, 1913.

The best results were obtained in simple, acute otitis media or with mastoid symptoms, and in simple chronic otitea. If there be bony lesions, even with fungus growth, aspiration ought to give amelioration or relief. The treatments last from ten to twelve minutes. If there is any bleeding the treatment should be stopped. ED.

2477

Plastic for Closing Retro-auricular Opening. CITELLI, *Arch. intern. de Laryngol.*, May-June, 1913, p. 808.

Citelli describes in detail his new procedure by which he successfully closed retro-auricular opening in two cases. ED.

2483

Technic of the Labyrinth Operation E. B. DENCH.

Original contribution to THE LARYNGOSCOPE, Aug., 1913, p. 814.

2484

Decompression for the Relief of Disturbances of the Auditory Apparatus of Intra-cranial Origin. W. P. EAGLETON.

Original contribution to THE LARYNGOSCOPE, May, 1913, p. 592.

2487

Intra-Cranial Division of the Auditory Nerve for Persistent Tinnitus. C. H. Frazier, *Jour. A. M. A.*, Aug. 2, 1913, p. 327.

Intra-cranial division of the auditory nerve is indicated when the obstinate vertigo is associated with tinnitus, for the relief of certain forms of persistent otalgia, and for severe, persistent, intractable tinnitus. A case of the last-mentioned condition, successfully operated, is reported in detail. Ed.

2490

Diathermia in Treatment of Deafness from Middle-ear Disease. Hamm, *Deut. med. Wchnschr.*, July 10, 1913.

Abstracted in The Laryngoscope, Oct., 1913, p. 1017.

2493

Medicinal Combination Very Efficacious in Treatment of Chronic Suppurative Otitis Media. H. Joliat, *Rev. de Laryngol.*, June 14, 1913, p. 710.

The following solution is recommended: Acid boric; bismuth subnitr. ana 4.0; acid benzoic 0.5; formalin gtt. 3; glycerin q. s. ad 30.0. After the ear has been thoroughly cleansed and dried this solution is dropped in and left in the ear for ten minutes. Ed.

2502

Otorrhea of Twenty Years' Duration Cured by Surgical Intervention and Use of Wright Vaccine. J. Laboure, *Rev. hebd. de Laryngol.*, March 29, 1913, p. 369.

Abstracted in The Laryngoscope, Aug., 1913, p. 848.

2505

Salvarsan in Otiatrics. J. Lang, *Deut. med. Wchnschr.*, No. 9, 1913.

Abstracted in The Laryngoscope, Nov., 1913, p. 1052.

2509

Inadequacy of the Drainage Sometimes Obtained by the Ordinary Myringotomy in Acute Otitis Media and a Method of Overcoming the Difficulty. R. Lewis.

Original contribution to The Laryngoscope, Feb., 1913, p. 121.

2515

Implantation of Cartilage for Prevention and Correction of Deformity of the Auricle. H. P. Mosher, Trans. Am. O. Soc., 1913, p. 240.

Case of chondritis of auricle following operative procedure. Two-thirds of the auricular cartilage had disappeared. The author, in several stages, transplanted cartilage obtained from the nose of this and other patients and obtained satisfactory results. He feels that this technic deserves extensive trial. Ed.

2516

Suggestions on Phenol and Ichthyol in External Otitis. J. H. Nelson, *Jour. A. M. A.*, March 8, 1913.

Abstracted in The Laryngoscope, July, 1913, p. 780.

2517

Roentgen Therapy in Otosclerosis. H. ORTLOFF, *Arch f. Ohrenh.*, Bd. 90, Heft 4, 1913, p. 233.

Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 998.

2518

Treatment of Cauliflower Ear. D. H. PALMER, *N. W. Med.*, Dec., 1913.

After preparing the skin of both sides of the ear and the immediate vicinity of the face and scalp after any of the approved surgical methods except iodin, the author makes an incision over the prominent point of the swelling through the skin and perichondrium into the hemorrhagic cavity, after plugging the external auditory canal with cotton. All clots, new-formed bone or cartilage are then removed with a fine gouge or curette, gently scraping the anterior surface of the old cartilage until it is smooth.

The incision is now closed except for a small opening which will just admit a Eustachian catheter connected up with a small Pynchon pump. This rapidly removes all accumulated blood and the suction approximates the perichondrium skin and cartilage. The skin surface is now thoroughly dried and a new plug of cotton placed in the external auditory canal Sterile vaseline is applied to both surfaces of the ear and for an inch anterior and posterior to the ear on the skull.

About one-half tumbler of plaster of Paris cream is poured into a card-board mould surrounding the ear. The ear is now completely encased in the plaster with the Eustachian catheter inside and the pump working continuously.

As the plaster begins to harden a slight rotary motion is kept up with the catheter to permit its easy removal through the cast. The track of the catheter is the drain to the opening in the ear and allows any fluid that may collect to escape. A small piece of gauze over the cast and a light retaining-bandage or adhesive tape will support the cast and prevent motion. The cast may be removed in ten days. The ear will be found perfectly normal and there will not be any recurrences. ED.

2519

Management of Acute and Chronic Suppuration of the Middle Ear. J. J PATTEE, *Colo. Med.*, Feb., 1913.

In this article Pattee gives the general practitioner a few suggestions to aid him in the recognition of otites and also discusses prognosis and treatment. ED.

2520

Treatment of Persistent Otorrhea in Infants and Young Children by the Establishment of Post-auricular Drainage. W. C. PHILLIPS.

Original contribution to THE LARYNGOSCOPE, July, 1913, p. 778.

2525

Otosclerol in the Treatment of Tinnitus. SENATOR, *Med. Klinik*, No. 47, 1913, p. 1936.

In case of subjective tinnitus the author has obtained good results by using otosclerol. Of course this therapy may have to be used in conjunction with other measures Otosclerol must be taken about five to six weeks and may have to be resumed after an interval of rest. Usually one tablet three or even five times a day is indicated. Ed.

2526

Relief of Ear-ache and Induction of Operative Anesthesia by Infiltration of the Auriculo-temporal and Tympanic (Jacobson's) Nerve. P. G. Skillern, *Boston Med. and Surg. Jour.*, Oct. 2, 1913, p. 503.

Skillern recommends the infiltration method for local anesthesia of the external auditory canal and the membrana tympani, which are supplied very large by fibers from Jacobson's nerve. He found that this nerve could be easily and effectively reached by a needle passed immediately behind the auriculo-temporal nerve, at the level of the tragus. The opening of the jaw facilitates the injection. A case in point is cited where the patient was suffering intense pain from a furuncle of the canal. The infiltration of Jacobson's nerve was done, resulting, not only in a cessation of pain, and an operative anesthesia, but the relief from the pain continued. Skillern advises the use of a 2 per cent novocain solution with 1-3000 adrenalin. If relief from pain alone is desired quinin-urea hydrochlorid is recommended because its effects last for many hours. Alcoholic injections are more suited for intractable pains.

For anesthesia of the membrana-tympani he suggests puncturing the drum with a needle and filling the middle ear with the novocain-adrenalin, thus reaching the mucous membrane surface of the drum.

Berry (Mosher).

2532

Use of Gauze Packing in the Ear Canal. M. D. Stevenson.

Original contribution to The Laryngoscope, Oct., 1913, p. 1008.

2538

Treatment of Chronic Deafness by High Potential Electric Currents. D. H. Yates, *Jour. Adv. Ther.*, May, 1913, p. 185.

The author reports wonderful results; 50 per cent cures in cases where the ossicles have not become ankylosed and the patient is not totally deaf. The treatments are given for several weeks, and last from 20 to 30 minutes. Ed.

2541

Typhoid Bacilli in Pus From Mastoid Process. O. Alberti, *Ztschr. f. Ohrenh.*, Bd. 69, Heft 1, 1913, p. 64.

Child of 2 years; nausea and high fever; four days later broncho-pneumonia; in next few days pronounced inflammation in tympanic cavity. No joint stiffness. Body and extremities covered with brown, exanthematous spots. Bilateral opening showed the mastoids filled with pus. Exitus on following day because of cardiac insufficiency. Pneumococci and typhoid bacilli present in pus. Ed.

2545

Serous Cyst of the Mastoid Process. Breyre, *Ann. de la Soc. Med.-Chir. de la Liege*, Jan., 1913.

This cyst developed without pain in the ear, the only symptom being a facial paralysis. The patient had hitherto been entirely healthy. The cyst was successfully operated but recurred. Ed.

2546

Infant Temporal Bone and its Relation to Mastoid Operation. H. B. Brown, *Bull. Lying-in Hosp.*, March, 1913, p. 11.

In infants the author places the incision not nearer than a quarter of an inch from the auricular attachment to avoid injuring the facial nerve which lies on the very surface of the bone behind the lower half of the posterior canal wall. If the periosteum is not elevated with great care the middle fossa may be penetrated and the brain injured. Unless the operator be well acquainted with the infant mastoid, the curette should be used to remove outer bony covering. When the mastoid structure is removed the operator must be careful not to injure the posterior semicircular canal which is situated just behind the horizontal canal. The technic detailed is based on Freligh's anatomical studies. Ed.

2566

Prognosis of Operative Mastoiditis. H. Hays, *Arch. of Diag.*, Jan., 1913.

Hays reviews the 1912 reports of the New York Eye and Ear Infirmary as to mastoiditis and concludes that the prognosis should always be guarded. Recurrence or facial paralysis may set in years after the operation. Ed.

2581

Glio-sarcoma of the Left Lobe of the Cerebellum Giving External Symptoms of a Mastoiditis. Report of a Case. J. F. McCaw.

Original contribution to The Laryngoscope, Oct., 1913, p. 1004.

2582

Latent Mastoiditis. O. A. M. McKimmie, Trans. Phila. Laryngol. Soc., Dec. 16, 1913.

Abstracted in The Laryngoscope, March, 1914, p. 236.

2595

History of the Mastoid Operation. E. Schmiegelow, *Ztschr. f. Ohrenh.*, Bd. 68, Heft 1, 1913.

Some 120 odd years ago there died in the capital of Denmark, the king's physician in ordinary, the celebrated Privy Councellor Johann Just von Berger. This privy councellor is famous not by his deeds, but by his death. Deafness, ear noises and dizziness induced the ambitious septuagenarian to have a mastoid operation performed on his right ear. The celebrated patient was permanently cured from all his troubles; for the operation was very successful and the patient died soon after. For many decades Koelpin, the daring operator, was called a murderer. By the above-mentioned awakening of the dead one, Prof. Schmiegelow tries to exonerate the embryo otologist of the days of yore. The privy councellor's skull was found last year in a graveyard beneath a church in Kopenhagen. This "human document" should warn those who undertake operations in co-operation with the undertaker that whatever they have chiselled into the bone will be deciphered by posterity, when the dead ones awake. Although the "corpus delicti" is missing, for the operated right mastoid process had been removed at the post-mortem, the privy councilllor's skull exposes the surgeon's technic, as the latter had to demonstrate before a body of sneering fellow physicians his modus operandi on the other mastoid process. At the tip of the left mastoid process a round trepanation opening is visible which leads into a conical canal to a distance of about 1 cm. from the surface of the bone. The mastoid cells are superficially opened, while the antrum, lamina vitrea, and sulcus sinus transversi are not encroached upon. Prof Schmiegelow therefore believes that the surgeon committed no technical error, as the drill was not applied too high nor too deep and could therefore not have injured the interior of the skull. The post-operative history of the patient, however, as reported by Koelpin immediately after the privy councillor's death, shows, when described in modern terms, otogenous septico-pyemia, septic thrombus within the sinus transversus and cavernous and purulent leptomeningitis. GLOGAU.

2602

Case of Mastoiditis with Peri-sinus Abscess and Paralysis of One Leg. D. J. G. WISHART, *Can. Med. Assn. Jour.*, Nov., 1913, p. 972.

In this case the fatality would have been prevented had the mastoid been opened earlier. The history of the brain abscess is unique in that there was no vomiting, fever, nor chill until fourth day. ED.

2604

Streptococcus Mucosus. W. ZEMANN, *Arch. f. Ohrenh.*, Bd. 92, Heft 1-2, 1913, p. 74.

Zemann arrives at the following conclusions: 1. Mucosus suppurations are relatively frequent. 2. The course of mucosus otitis is typical in about 50 per cent of the cases. 3. Mucosus suppuration often leads to mastoid and endo-cranial complications. 4. More than half the cases of endo-cranial complications were perisinuous abscesses. 5. The mastoid ostitis does not often perforate the cortex externally but rather toward the brain cavity. 6. In regard to therapy further exact observation of the prodrominal manifestations of the disease is necessary. 7. The mastoid pus should be examined bacteriologically. 8. Every rise in temperature after operation, not otherwise accounted for, indicates another pus focus and further operation. Therefore primary stitching of the retro-auricular wound is contra-indicated. 9. The average healing time is 62 days. 10. If all the pus foci are properly eliminated the prognosis is favorable.
ED.

2607

Thrombosis of Otitic Origin. C. CALDERA and G. FINZI, *Arch. ital. di Otol.*, Nos. 5-6, 1913.

The authors discuss the topography of the lateral sinus and the conditions which may lead to an infection; they discuss the symptomatology of thrombo-phlebitis and report nine cases, with 5 recoveries and 4 deaths. Diagnosis and therapy are discussed and the following conclusions drawn from experiments on dogs: Collargol is an effective therapy; tying and resecting the jugular interrupt the spread of the infection; opening and removing the thrombus is effective. ED.

2614

Sinus Thrombosis Following Necrosis of Periosteal Flap. OTTO GLOGAU, *Ann. of Otol.*, June, 1913.

Glogau reports a case of apparently uncomplicated acute mastoiditis in which a periosteal flap was formed according to Leland's method. Sinus thrombosis, doubtless due to necrosis of the periosteal flap, resulted.

ED.

2619

Case of Cavernous Sinus Thrombosis of Otitic Origin With Recovery. H. R. JOHNSON.

Original contribution to THE LARYNGOSCOPE, Feb., 1913, p. 124.

2636

Case of Cerebellar Abscess of Otitic Origin Successfully Operated. U. CALAMIDA, *Arch. ital. di. Otol.*, July, 1913, p. 281.

2641

Facial Paralysis in Fractures of the Petrous Portion of the Temporal Bone. H. DE STELLA, *Arch. intern. de Laryngol.*, May-June, 1913, p. 696.

Apropos of the three cases reported the author discusses the two forms of paralysis: 1. This takes place simultaneous with the trauma and involves the wall of the Fallopian canal; the nerve is either directly injured or compressed because of the extravasation of blood. If the nerve has not been entirely severed these cases recover in six to twelve weeks. 2. This is the more usual form and develops two to four days after the trauma. It is due to a secondary compression of the nerve caused by the surrounding inflammatory exudate which almost always develops in such fracture even if the Fallopian canal is not dilated. This form of paralysis is not of long duration.

ED.

2646

Perforation of the Petrous Portion of Temporal Bone. B. GRAHAM, *Ann. of Otol.*, Sept., 1913, p. 798.

The author reports the histories of two cases with autopsy findings to demonstrate the insidious and burrowing power of the capsulated bacteria. The article is illustrated.

ED.

2651

Extra-dural Abscess Complicating Frontal Sinusitis. R. H. JOHNSTON.

Original contribution to THE LARYNGOSCOPE, March, 1913, p. 206.

2658

Sub-periosteal Temporal Abscess of Otic Origin Without Intra-osseous Suppuration. HENRI LUC.

Original contribution to THE LARYNGOSCOPE, Oct., 1913, p. 999.

2678

Indications for and Results of Operative Treatment of Otitic Meningitis. E. W. DAY, *Surg. Gynecol. and Obstetr.*, April, 1913, p. 369.

The author has treated 57 cases of meningitis: 53 of otitic origin, 2 nasal, and 2 secondary to pneumonia. All were diagnosed as diffuse suppurative meningitis, and 38 confirmed by autopsy. Four cases recovered, 3 operative and one with vaccine therapy. Meningitis followed chronic purulent otitis and its acute exacerbation twice as frequently as the acute form. The complicating acute type was more often the explosive form, running a rapidly fatal course. Meningitis following the chronic type had a more protracted course.

The treatment was: (1) injection of drugs into spinal canal, (2) vaccines and sera; or (3) operative. The first is unsatisfactory, for drugs strong enough to overcome the infection are harmful to other organs; the vaccines and sera were also unsatisfactory. Dural drainage and drainage of cisterna magna is only partially effective. Surgery has not reduced the mortality and a successful treatment is still to be discovered. Early diagnosis is essential. ED.

2680

Report of Three Cases of Otitic Meningitis Treated by Drainage of the Cisterna Magna. EDWARD B. DENCH.

Original contribution to THE LARYNGOSCOPE, Sept., 1913, p. 944.

2700

Diagnosis of Rupture Into the Lateral Ventricle and of Acute Internal Meningitis. E. RUTTIN.

Original contribution to THE LARYNGOSCOPE, Aug., 1913, p. 819.

2706

Some Conditions Associated with Loss of Cerebro-spinal Fluid. R. B CANFIELD, *Ann. of Otol.*, Sept., 1913, p. 604.

Eleven cases are reported. The author gives the following resume: In cases 1, 2 and 3, labyrinth involvement occurred during a chronic otitis media. In Case 1 the labyrinth was not opened at the time of operation, although failure to find the stapes after operation, together with the daily loss of cerebro-spinal fluid are sufficient evidence that it had been opened. In Cases 2 and 3 the labyrinth was exenterated. Here the suppurative cavity was brought into communication with the subdural space without setting up a meningitis. Case 3 demonstrates the condition of meningismus into which the patient may lapse as a result of excessive loss of cerebro-spinal fluid; a heteroplastic dural graft was successfully made for the relief of the condition. In Case 4 the avenue of infection of the meninges and that of the escape of the cerebro-spinal fluid through the pneumatic structures of the apex of the temporal bone could be made out. In Cases 5, 7 and 8 free communication between the sub-dural space and the suppurating cavity did not cause meningitis. In Cases 6 and 10 sudden decrease in cerebral pressure caused rupture of the lateral ventricles into the abscess cavity without infecting the ventricle. Case 9 shows that hemiplegia may result from loss of the cerebro-spinal fluid and that by stopping the escape the function may be restored. Case 11 illustrates that the sub-dural space or base of the brain may remain in free communication for an indefinite period with the nasopharynx without establishing a meningitis. Ed.

2707

Easy Method of Demonstrating Cells in Cerebro-spinal Fluid. SCHLUETTENER, *Neurol. Zntrlbl.*, No. 7, 1913, p. 420.

The fault with the other methods of examining the spinal fluid is the length of time required. The author recommends a rapid method and one in which clear, sharp cell-pictures are obtained. Ed.

2708

Tibial Bone Transplantation in Post-operative Mastoid Wounds. M. J. BALLIN, *Med. Rec.*, March 1, 1913, p. 372.

Ballin successfully used tibial bone transplantation in three cases. The piece is cut to fit the cavity. The transplanted bone acts as a bridge and on it the skin of the mastoid cavity rests. The cavity under the bridge of bone fills with blood which becomes organized and is eventually replaced by new bone from the transplant; thus after a time the cavity becomes obliterated. Ballin describes his technic in detail and cautions against possible complications. He does not advocate this method as a routine procedure but feels that it is of value in cases where there is a clean granulating wound. Ed.

2710

Use of Vaccine After the Mastoid Operation. W. C. BRAISLIN, Trans. Am O. Soc., 1913, p. 234.

Braislin employed vaccines in six of his thirty-five mastoid operations during the winter with excellent results. He feels that it is indicated in cases presenting the following complications: 1. Extensive infiltration of glands of neck following operation for streptococcic mastoiditis and cervical abscess. 2. Indeterminate or obscure causes of elevated temperature (lateral sinus excluded from involvement). 3. Delay in granulation and healing process. 4. Pain in limbs, joints and back, without special temperature elevation, after operation for streptococcic mastoiditis. 5. In cases of post-operative pneumonia. 6. In cases of infection of labyrinth. Ed.

2715

Obliteration of the Mastoid Excavation by the Implantation of a Tissue-flap Taken from the Temporal Bone. S. IGLAUER.

Original contribution to THE LARYNGOSCOPE, May, 1913, p. 585.

2722

Treatment of Fracture of Petrous Bone. H. and A. NIMIER, *Presse Med.*, July 26, 1913.

In most cases of skull fracture involving the petrous portion of temporal bone the tympanic cavity is in an aseptic state. Therefore operative measures or attempts as disinfection of the auditory passages in cases with hemorrhage from ear are not indicated. In cases of petrous fracture where a chronic otitis media exists or develops no routine procedure can be prescribed. Every such case demands prompt and individual therapy. ED.

2727

The Myringoscope. G. G. CARROLL, *Jour. A. M. A.*, Dec. 6, 1913, p. 2065.

The instrument consists of a cylinder, one end of which is closed, and at the other is fitted any one of three sizes of specula depending on the caliber of the external canal of the ear to be examined. On one side of the cylinder there is a round window with a magnifying lens while inside and opposite the round window is a plain mirror at approximately an angle of 45 degrees. Inside the cylinder is attached a tungsten lamp lighted by a 2½-volt dry battery, or it can be lighted by any other rheostat or controller desired. There is also attached to the cylinder an auscultation tube. The method of using the instrument is described. So far as Carroll knows it is new for the study of the patency of the Eustachian tube, inflation of the tympanum and the study of its excursion from inside air-pressure, as compared with the Siegel otoscope findings from without.

2728

The Monochord. MAX A. GOLDSTEIN.

Original contribution to THE LARYNGOSCOPE, March, 1913, p. 216.

2729

Practical Antiphone. HALLE, *Deut. Med. Wchnschr.*, No. 1, 1913.

A pledget of cotton wadding re-enforced with a silk thread is dipped into hot paraffin (melting point, 52°-57°). The antiphone can be disinfected in sublimate and will be found to be very serviceable. ED.

2731

Improved Audiometer. H. HAYS.

Original contribution to THE LARYNGOSCOPE, Aug., 1913, p. 864.

2733

Illuminated Ear Speculum. F. A. KIEHLE, *Jour. A. M. A.*, Aug. 16, 1913, p. 491.

Kiehle presents a speculum with attached battery for illuminating the ears of patients who are confined to bed. ED.

2734

The Aurometer. M. LUBMAN, *N. Y. Med. Jour.*, Nov. 22, 1913, p. 1016.

By means of this instrument the exact hearing distance may be determined as well as the progress made in the treatment of various conditions of deafness. The aurometer consists of a circular head-band adjustable by a thumbscrew to fit any size of head. At the sides of this head-band opposite the ears are extended two angular bars graduated in one-half inches. On each bar is a sliding upright piece controlled by a thumb-screw and with a small hook at the top to suspend a watch; the watch will be in the exact line of the external canal. The head-band has two eye-shields to obstruct the patient's vision. The watch should hang on a string from the hook as this will prevent the transmission of vibrations from the watch. Ed.

2735

Tuning-fork Harmonium and Its Application in Voice-formation and Treatment. E. N. Maljutin, *Arch. f. Laryngol.*, Bd. 27, Heft 3, 1913, p. 477.

The author has constructed his system by attaching three tuning-forks each of which can be sounded separately. A phonendoscope is also attaced. Ed.

2738

Resonators With Special Reference to the Schaefer Apparatus. R. Sonnenschein.

Original contribution to The Laryngoscope, May, 1913, p. 602.

2739

Curette for Bridge in Radical Mastoid. M. D. Stevenson.

Original contribution to The Laryngoscope, March, 1913, p. 225.

2748

Needle-holder for Submucous Resection of the Septum. H. B. Hitz, *Jour. A. M. A.*, April 26, 1913, p. 1295.

With this instrument a small curved needle can be securely grasped so that a suture may be passed in any direction, leaving a clear view of the operating field and enabling one to do suturing in any direction with the least possible traumatism to the frequently thin, fragile, mucoperichondrial flap. Ed.

2750

Instrument for Posterior Rhinoscopy. W. Lloyd, *Lancet*, No. 13, 1913, p. 4711.

This instrument consists of a tube with a movable mirror at the end. The spatula may be fitted in a Bruening's apparatus. The soft palate is pushed out of the field of vision by means of an India rubber cord inserted through the nose. Ed.

2753

Needle for Intra-nasal Suturing. C. N. Spratt.

Original contribution to The Laryngoscope, Dec., 1913, p. 1150.

2761

Corwin's Tonsil Hemostat. A. M. Corwin.

Original contribution to The Laryngoscope, March, 1913, p. 226.

2762

Sharp Tonsil Dissector with Double Pillar Retractor. Modified Jansen Middleton Nasal Septum Punch. S. Goldstein.

Original contribution to The Laryngoscope, Dec., 1913, p. 1151.

2763

New Tonsil-snare. L. D. and A. S. Green, *Jour. A. M. A.*, June 28, 1913, p. 2043.

The authors point out the disadvantages of other snares and claim for their own: (1) Rapid and slow snaring can be done at will (2)

Canula remains stationary preventing injury to posterior pillar and partial removal because of slipping of wire loop. (3) Because of ratchet one can always stop to ascertain whether pillar and uvula are free. (4) If the loop be too large and the tonsil not quite snared off it can easily be disengaged by loosening thumb-screw and pulling out the stylet.

ED.

2764

Electric Light-bath for the Throat. HAENLEIN, *Med. Klinik*, No. 10, 1913.

This apparatus is of service in pharyngeal affections in which light-baths are therapeutically indicated. It is covered with waxed felt which is washable and retains the heat. Asbestos prevents burning. The degree of warmth can be regulated. ED.

2775

Mouth-gag With a permanently Attached Tube for Continuous Etherization, and a New Tonsil Grasp. W. C. WOOD.

Original contribution to THE LARYNGOSCOPE, March, 1913, p. 222.

2776

New Antrum Knife. O. A. LOTHROP, *Boston Med. and Surg. Jour.*, Sept. 15, 1913, p. 471.

With Lothrop's new knife a large opening into the antrum can easily be made intra-nasally. The knife consists of a stout handle and shaft and a thick, short, chisel-like blade which is set at right angles to the shaft. The shaft is curved outward slightly; the cutting edge is so adjusted that when traction is made in the direction of the shaft the knife cuts downward like a carpenter's draw knife. There is a knife for the right and left side; they can be used to cut upward or downward. Lothrop also describes his technic. ED.

2779

New Instruments. J. J. SULLIVAN.

Original contribution to THE LARYNGOSCOPE, Feb., 1913, p. 132.

2782

The Hentschel Apparatus for Inhalation Therapy. CITELLI, *Bol. delle Mal. dell 'Orecchio*, July, 1910, p. 149.

Citelli describes this instrument with which he has had much success and also indicates the medication employed in it. ED.

2785

Convex Laryngeal Mirror. GEIGEL, *Muench. Med. Wchnschr.*, No. 48, 1913, p. 2679.

Geigel recommends this mirror especially for the first examination because of its large visual field. It is also of very decided advantage in posterior rhinoscopy. ED.

2789

Direct Laryngoscopes. C. JACKSON.

Original contribution to THE LARYNGOSCOPE, June, 1913, p. 708

2790

Endoscopic Syringe. CHEVALIER JACKSON.

Original contribution to THE LARYNGOSCOPE, Aug., 1913, p. 863.

2794

New Principle in Esophagoscopy. R. LEWISOHN, *N. Y. Med. Jour.*, Oct. 4, 1913, p. 648.

The new esophagoscope is based on the principle of a rectangular telescope. It can be introduced in a normal position of the head and passes in the longitudinal axis of the esophagus and not at an angle to this axis. The light-attachment is at the proximal end of the horizontal tube and the mirror at the junction of the horizontal and vertical parts. With a specially constructed forceps specimens for microscopic diagnosis and foreign bodies may be removed. ED.

2795

Laryngo-fissure. MARSCHIK, *Wr. klin. Wchnschr.*, No. 11, 1913.

In a patient with cicatricial stenosis of the larynx after laryngo-fissure was performed the Ciari-Marschik apparatus was used with the result that the patient can now speak with a laryngeal voice. ED.

2796

Lerche's Instrumentation for Internal Esophagotomy. MARSCHICK. *Wr. klin. Wchnschr.*, No. 11, 1913.

This instrumentation has thus far been used in a dozen cases at Chiari's clinic with very satisfactory results. The after-treatment consists of the usual progressive dilatations or of treatment with some other instruments presented. ED.

2797

Simple Devices for Effective Artificial Respiration in Emergencies. S. J MELTZER, *Jour. A. M. A.*, May 10, 1913, p. 1407.

Meltzer describes in detail two methods (the pharyngeal and masked) of rhythmically introducing air into the lungs, even in the rigid and frozen cadaver. The masked method is very simple and is more especially suited for emergency cases. The devices are inexpensive and can be combined with the Schafer method of manual and artificial respiration.

ED.

2799

Radium Holder for Larynx. F. NEUMANN, *Monatschr. f. Ohrenh.*, No. 5, 1913, p. 715.

After thorough cocainization this instrument can be left *in situ* as long as half an hour. Tracheotomy is unnecessary; during the endo-laryngeal radium application the patient breathes through the larynx. ED.

2800

The Autophonoscope. PANCONCELLI-CALZIA, *Ztschr. f. Laryngol.*, Bd. 6, Heft 3, 1913, p. 437.

The instrument is practically a Hays' phsyngoscope with an attachment for self-observation of the larynx such as John D. Wright of New York had constructed long before the writer had perceived the idea of his instrument. Although the autophonoscope is patented in Germany, its real fatherland is America. Its supposed distinguishing feature is the possibility of observing one's own vocal cords simultaneously with the examiner. GLOGAU.

2801

New Lamp for Diaphanoscopy and Endoscopy. H. REUTER, *Muench. med Wchnschr.*, No. 28, 1913.

This lamp was originally constructed for ophthalmological work but can be used for transilluminating the sinuses. It can be easily sterilized, consists of two dry batteries, and is especially adapted for examinations in the patient's home. ED.

2805

New Apparatus to Teach Totally Deaf to Sing Three or Four Notes Within an Octave. E. W. SCRIPTURE, Trans. N. Y. Acad. of Med., Feb. 26, 1913.

Abstracted in THE LARYNGOSCOPE, Aug., 1913, p. 874.

2814

Face Protector. F. E. CUTLER.

Original contribution to THE LARYNGOSCOPE, Dec., 1913, p. 1151.

2817

Paper Face Protector. LEVINGER, *Muench. med. Wchnschr.*, No. 29, 1913.

This rectangular paper curtain is made to adhere to the bony part of the nose. The eyes are protected by means of glasses. This protector not only guards the physician against infection from the patient but also the patient from infections in the physician, such as acute rhinitis, etc. ED.

2818

Apparatus for Oto-rhino-laryngological Photo-therapy. A. NEPVEU, *Rev. hebd. de Laryngol.*, Feb. 15, 1913, p. 182.

Both the patient and operator are supplied with spectacles for protection against the ultra-violet rays. The rays are not only used in the nose and throat but are also reflected into the larynx by means of a quartz laryngeal mirror. The rays can be used for 15 to 25 minutes at a time. ED.

2830

Malformation of Upper Air and Digestive Tract in New Born. ANDERODIAS, *Jour. de Med. de Bordeaux*, Oct. 5, 1913.

Syphilis in the mother was probably responsible for the malformation. It was first noticed when the child was unable to nurse properly. The esophagus terminated in a blind sac just above the cardia and here probably communicated with the trachea. All liquids swallowed passed into the trachea and lungs. ED.

2836

Vaccine Therapy of Whooping Cough. A. BAMBERGER, *Am. Jour. of Child. Dis.*, Jan., 1913, p. 33.

Abstracted in THE LARYNGOSCOPE, Aug., 1913, p. 869.

2860

Biological Strains of Whooping Cough Bacillus. BORDET, *Jour. of State Med.*, Sept., 1913.

If, after the original isolation of the whooping-cough bacillus on blood agar, it is gradually accustomed to grow on ordinary agar and do without blood, then the organism is no longer agglutinated by an antiserum made from bacilli still growing on blood. Similarly, the reverse holds good, the antiserum obtained from the ordinary agar cultures not agglutinating the blood-agar strain. Notwithstanding these changes in constitution, however, either antiserum will fix the complement with either of the races. In nature, the same features are shown by certain strains of dysentery bacilli, and Bordet points out that evidently here we are dealing with changes due to different environmental conditions, especially as regards food supply. The importance of these findings is obvious when we consider the reliance placed on the Widal reaction in the diagnosis of typhoid fever and the agglutination test in general. It is obvious that absence of agglutination with any specific serum does not necessarily mean that we are dealing with another species of organism—it may be only a biological race.—*Ed.*

2861

Diabetes Insipidus with Tuberculosis of the Pituitary Gland. L. BORELLI, *Gior. della R. acad. di Med.*, Vol. 76, No. 91, 1913.

At autopsy in this tubercular, semi-blind and almost totally deaf case the brain was found to be edematous, the pia mater containing numerous turbercles, especially at the base and along the Sylvian fissures. In front and at sides of sella turcica and in the middle cerebral fossae rounded mass of newly formed tissue which raised dura mater, eroded bone and involved hypophysis. Cecum and appendix tuberculous. The author refutes the theory that irritation of the paranervous lobe of the pituitary gland is the main and only cause of diabetes insipidus; he feels that it is due to irritation of base of brain, particularly around third ventricle, corpora mamillaria and posterior perforated space. ED.

2881

Pituitrin in Operative and Spontaneous Hemorrhage of Respiratory Tract. CITELLI, *Boll. delle Mal dell 'Orecchio*, April, 1913, and *Ztschr. f. Laryngol.*, Bd. 6, Heft 4, 1913.

Both in cases of spontaneous as well as in those of post-operative hemorrhage hemostasia was induced by injections of pituitrin. If an injection was made half an hour prior to operation the hemorrhage was greatly reduced during and after operation. ED.

2882

Treatment of Hemorrhage by Precipitated Blood Serum. G. H. Clowes and F. C. Busch, *N. Y. Med. Jour.*, Jan. 4, 1913.

The following conclusions are drawn: 1. Blood serum is found to be of considerable value in all conditions in which hemorrhage is due to lowered coagulability of the blood. 2. Human serum is in no way superior to that of a variety of animals. 3. Blood serum precipitated by acetone and ether is fully as effective as fresh serum, if not actually superior to it. Precipitated serum is freely soluble, and possesses the advantages of being sterile, always available, and retaining its capacity indefinitely. 4. The product obtained from horse serum appears to yield more uniformly satisfactory results than that obtained from other animals, and exerts no deleterious effect. 5. The determination of the rapidity with which sera and solutions of precipitated sera at comparative dilutions cause coagulation of citrated blood plasma affords a simple means of estimating the relative activity of the preparations in question.
Ed.

2892

Connection of Sexual Apparatus with the Ear, Nose and Throat. V. Dabney, *N. Y. Med. Jour.*, March 15, 1913.

Abstracted in The Laryngoscope, Nov., 1913, p. 1060.

2895

Negro's Sign in Peripheral Facial Paralysis. A. De Castro. *Braz. Med.*, June 22, 1913, p. 237.

This phenomenon was found in every case of peripheral facial paralysis; it consists in the exaggerated position assumed by the eyeball when the patient looks up as high as he can. The eyeball on the side of the paralysis swings farther up than on the sound side; if both sides are affected the phenomenon occurs on the side more affected. Ed.

2907

Some Ethical Problems Confronting the Eye, Ear, Nose and Throat Specialists. L. Emerson.

Original contribution to The Laryngoscope, March, 1913, p. 199.

2910

Ethyl-chlorid Narcosis in Operations on the Throat, Nose and Ear. Alfred Falk, *Ztschr. f. Laryngol.*, Bd. 6, Heft 1, 1913, p. 1.

Abstracted in The Laryngoscope, Aug., 1913, p. 840.

2919

Detection of Tubercle Bacilli in Sputum. A. Fontes, *Brazil Med.*, June 8, 1913, p. 213.

Fontes commends the following technic as causing perfect blending with no mineral sediment and no change in the bacteria, while the resulting fluid is less dense than with other technics, permitting rapid centrifugation. To each ccm. of sputum 10 ccm. of a centri-normal solution of hydrochloric acid is added and all stirred together with a glass rod until all becomes fluid; then he adds, for each ccm. of the sputum, 10 ccm. of decinormal soda solution and 10 ccm. of hydrogen dioxid. As it foams he adds alcohol, a drop at a time, until the foam disappears. If there is still a little viscosity in the fluid, he adds a few ccm. of water. If the sputum is not very thick the hydrochloric acid may be omitted. The deposit after centrifugation takes stains unusually well.—*Ex.*

2934

Use of Normal Horse-serum as a Means of Controlling Hemorrhage in Oto-laryngology. M. A. GOLDSTEIN.

Original contribution to THE LARYNGOSCOPE, Oct., 1913, p. 961.

2953

Case of Thiosinamine Poisoning. W. A. HITSCHLER, Trans. Phila. Laryngol. Soc., March 18, 1913.

Abstracted in THE LARYNGOSCOPE, Dec., 1913, p. 1176.

2955

Abderhalden's Method in Oto-laryngology. RUD. HOFFMAN, *Monatsschr. f. Ohrenh.*, No. 10, 1913.

Abderhalden's reaction reveals the abnormal function of any of the glands with internal secretion. The serum of the patient breaks up the tissue of the gland whose function is altered. Our knowledge of hay-fever and otosclerosis will be advanced by the application of the Abderhalden test. Thus functional changes of the thyroid, thymus, hypophysis, ovary, testes, pineal and suprarenal glands may be diagnosed and therapeutically influenced. In traumatic fissures of the pyramid bone, encroaching upon the labyrinthine capsule, the clinical picture may simulate that of otosclerosis. Abderhalden's method will differentiate this condition from real otosclerosis, as in the latter the function of one or several glands is altered. It is very difficult to diagnose histologically laryngeal carcinoma when it is combined with lues. The diagnosis is, however, established when the patient's serum breaks up carcinomatous albumen. In articular rheumatism and tuberculosis lymph-glands the patient's serum breaks up tonsillar tissue. The writer urges the specialists to apply Abderhalden's method regularly in oto-laryngology.

GLOGAU.

3003

Bacillus of Whooping Cough and the Lesion it Produces. F. B. MALLORY, *Am. Jour. of Public Health*, June, 1913.

In fatal cases of whooping cough Mallory observed minute organisms (bacilli) packed in large numbers between the cilia of the epithelium cells lining the trachea. They are Gram negative, non-motile, vary in shape from round to oval and act mechanically only; they interfere with the normal movements of cilia and furnish a continual irritation which excites coughing. The organism secretes a mild toxin as is indicated by a slight inflammatory exudation, a lymphocytosis and the production of a specific antibody. Sputum from acute cases of whooping cough was inoculated into the trachea of a puppy or rabbit. When the animals were killed and the respiratory tract studied microscopically, organisms were found between the cilia in the trachea and bronchi in every way identical with those found in whooping cough. Ed.

3010

Pernicious Anemia with Changes in the Mucosa. Matthes, *Med. Klinik*, No. 9, 1913.

Abstracted in The Laryngoscope, Aug., 1913, p. 874.

3032

Epinephrin in Whooping Cough. L. C. Mulas, *Gaz. degli. Osped.*, Oct. 16, 1913, p. 1295.

This is a report on fifteen cases; the symptoms were markedly relieved and cure was usually obtained in two weeks. No bad effects followed nor were there any recurrences. One case was complicated by malaria and in another there were signs of tuberculosis. Ed.

3034

Lymphatic Leucemia. B. Munday, Trans. N. Y. Acad. of Med., Dec. 17, 1913.

Abstracted in The Laryngoscope, Dec., 1913, p. 68.

3050

Surgery of the Thymus Gland. C. A. Parker, *Am. Jour. Dis. of Children*, Feb., 1913, p. 89.

Abstracted in The Laryngoscope, June, 1913, p. 89.

3068

Colds and Their Relation to the Physics of the Atmosphere. C. M. Richter, *Med. Rec.*, Dec. 6, 1913, p. 1014.

Richter reaches the following conclusions: Acute coryza, commonly called a "cold" depends for its development primarily on an excess of moisture in the air we inhale. It develops usually during the cyclonic weather conditions, especially when preceded by very dry weather. The excessive and more or less continuous nasal secretion at the beginning of an acute coryza relieves the respiratory apparatus from the otherwise damaging effect of an overcharge of moisture. The nasal mucosa of the child or the hyperesthetic one is usually affected. The "running of the nose" constitutes in part a physiological vaso-motor action analogous to the perspiration of the outer skin which sets in whenever air-temperature and the relative humidity transgresses certain limits and which forces thereby better conditions for evaporation. Later microbism becomes active on the mucosa only after these air-conditions have favored its development for some time. Microbism is very rarely the primary cause of an active coryza. Ed.

3087

Results With Neo-salvarsan in Luetic Affections of the Upper Air Passages. SCHLESINGER, *Ztschr. f. Laryngol.*, Bd. 6, Heft 3, 1913, p. 375.

In four injections 2.4 to 3.0 of the neo-salvarsan was given. All of the fifty-two injections on twenty patients were satisfactory and without complications. Neo-salvarsan is safe and effective though its action is not as prompt as that of "606."

3105

Conservative Treatment of Scarlatinal Abscess. SOERENSEN, *Therap. Monatsh.*, Aug., 1913.

In fifty-three of the 4,000 scarlet fever patients observed (1910-1911) an abscess developed near the ear. Treatment: incision down to bone, drainage and rinsing out. Later, on three of these cases the radical mastoid operation was performed; one died. The author urges conservative treatment in these cases. ED.

3106

Histological Differential Diagnosis Between Syphilis and Tuberculosis of the Upper Air Passages. A. SOLGER, *Ztschr. f. Ohrenh.*, Bd. 69, Heft 2, 1913, p. 137.

The characteristics of syphilis are: 1. Preponderance of granulation and plasma cells. 2. Abundant fibroblasts and fibrous connective tissue. 3. Diffuse and extensive caseation. 4. Changes in the vessels. The latter is the most reliable. The elastic fibers must be stained by the Weigert method. In only two of the twenty-five cases examined by the author was the diagnosis doubtful. ED.

3107

Cosmetic Correction of Facial Paralysis Through Facial Plastic. A. E. STEIN, *Muench med. Wchnschr.*, No. 25, 1913, p. 1370.

In a leutic case the author succeeded in obtaining a very good cosmetic result by means of free facial plastic. He details his operation and discusses other operations in vogue. ED.

3118

Presidential Address. ST. C THOMSON, Trans. XV. Intern. Congress of Med., 1913.

Abstracted in THE LARYNGOSCOPE, Oct., 1913, p. 1039.

3122

Classification of Tumors of the Pituitary Body. L. VON BONIN, *Brit. Med. Jour.*, May 3, 1913, p. 934.

A new scheme of classification based on the principle of histogenesis is given by Von Bonin. I. Heterotopic Tumors.— 1. Tumors of the craniopharyngeal duct; 2. Teratomas. II. Homoiotopic Tumors.—1. Epithelial tumors: (a) From anterior lobe,—chromophile, chromophobe, combined, cubic cell, adenoma round cell, adenoma carcinoma, (b) From pars intermedia; 2. Tumors developed from connective tissue: (a) From anterior lobe and pars intermedia—fibroma and sarcoma; (b) From posterior lobe, glioma; 3. Mixed tumors, fibro-adenoma.

3123

Action of Hypophyses Extract on the Kidneys. R. VON DEN VELDEN, *Berl. klin. Wchnschr.*, Nov. 10, 1913.

From experimental and clinical researches the author concludes that hypophysis extract depresses the kidney functioning. This very likely explains its beneficial effect in diabetes insipidus. ED.

3135

Whooping Cough. S. M. WILSON, *N. Y. Med. Jour.*, April 19, 1913.

Vaccine in doses of twenty to forty million bacteria was used in a series of twenty-four children. The paroxysms diminished in frequency and severity; the shortest duration of treatment was nine days, and the longest forty-eight days, and the average twenty-three days. ED.

3138

Report of Committee Appointed to Consider Best Methods in the Teaching of Oto-laryngology. J. G. WISHART, C. W. RICHARDSON, and S. MACCUEN SMITH.

Original contribution to THE LARYNGOSCOPE, Oct., 1913, p. 1010.

3141

Direct Radio-theray pf Nerve Roots in Treatment of Neuralgia. ZIMMERN, COTTENOT and DARIAUX, *Presse med.*, June 25, 1913.

The rays are applied to the nerve-root at the point where it pierces the bone. Direct exposure has been found very satisfactory in sciatica, neuralgia and neuritis of the brachial plexus and in trigeminal neuralgia. Radicular radio-therapy not only has a remarkable action in relieving pain but also in inducing repair. The benefit is due to relief of pressure at the points where the nerve pierces the bone. ED.

3142

Hemorrhage from the Air Passages. A. ZOGRAFIDES, *Monatschr. f. Ohrenh.*, Heft 2, 1913, p. 385.

Abstracted in THE LARYNGOSCOPE, Feb., 1914, p. 127.

3143

Asthma and Its Radical Treatment. J. ADAMS. PAUL HOEBER, N. Y., 1913.

To be reviewed in a subseqeunt issue of THE LARYNGOSCOPE.

3144

Bacterial Diseases of Respiration and Vaccines in Their Treatment. R. W. ALLEN. Blakiston's Son & Co., Philadelphia, 1913.

Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1180.

3145

Manual of Otology. G. BACON. Lea and Febiger, Phila., 1913.

Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1183.

3148

Stammering and Cognate Defects and Speech. C. S. BLUEMMEL. G. E. Steckert and Co., N. Y., 1913.

Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1182.

3152

French Otology During the Last Fifty Years. C. CHAUVEAU. J. B. Baillière et fils, Paris, 1913.
Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1179.

3157

Logopedia for Physicians, Teachers and Students. E. FROESCHELS. Franz Deuticke, Leipzig, 1913.
Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1181.

3158

Examination of Upper Air Passages. P. H. GERBER. Curt Kabitzsch, Wuerzburg, 1913.
Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1183.

3160

Operations on the Ear. B. HEINE. S. Karger, Berlin, 1913.
Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1179.

3163

Vicious Circles in Diseases. J. B. HURRY. J. and A. Churchill,, London, 1913.
Reviewed in THE LARYNGOSCOPE, Nov., 1913, p. 1120.

3164

Voice-fag. Phonasthenia. R. IMHOFER. Curt Kabitzsch, Wuerzburg, 1913.
Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1180.

3166

Hand-book of the Special Surgery of the Ear and Upper Air Tract. L. KATZ; H. PREYSING; and F. BLUMENFELD.
Reviewed in THE LARYNGOSCOPE, Jan. and Dec., 1913, p. 78 and 1178.

3167

Diseases of the Ear. P. D. KERRISON. J. B. Lippincott, Philadelphia, 1913.
Reviewed in THE LARYNGOSCOPE, Nov., 1913, p. 1120.

3170

Hand-book of Diseases of the Ear for the Use of Students and Practitioners. R. LAKE. Wm Wood and Co., New York, 1913.
Reviewed in THE LARYNGOSCOPE, Nov., 1913, p. 1120.

3174

Chronic Inflammatory Stenosis of the Cardiac Region of the Esophagus. G. LIEBAULT, Imprimeries Gounouilhou, Bordeaux, 1913.
Reviewed in THE LARYNGOSCOPE, Nov., 1913, p. 960.

3176

Superior Laryngeal Nerve. G. LIEBAULT and R. CELLES, *Feret and Fils*, Ed.-Bordeaux, 1913.
Reviewed in THE LARYNGOSCOPE, Nov., 1913, p. 960.

3178

Causes and Prevention of Deafness. J. K. LOVE. Nat. Bureau for Promoting Gen. Welfare of Deaf, London, 1913.
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3179

Labyrinth Papers. G. W. MACKENZIE. Examiner Printing House, Lancaster, 1913.
Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1179.

3182

Lang's German-English Dictionary of Terms Used in Medicine and the Allied Sciences. MILTON K. MEYERS. P. Blakiston's Son & Co., 1913.
Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1184.

3184

Acoustics and Mechanics of the Voice. MUSEHOLD. Julius Springer, Berlin, 1913.
Reviewed in THE LARYNGOSCOPE, March, 1914, p. 240.

3187

Relation of the Lacrimal Organs to the Nose and Nasal Accessory Sinuses. A. ONODI. Wm. Wood and Co., N. Y., 1913.
Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1183.

3188

Diseases of the Nose, Throat and Ear for the Use of Students and General Practitioners. F. R. PACKARD. J. B. Lippincott Co., Philadelphia, 1913.
Reviewed in THE LARYNGOSCOPE, Nov., 1913, p. 1119.

3190

Atlas on Development of Nose and Palate in Man. K. PETER. Gustav Fischer, Jena, 1913.
Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1182.

3191

Diseases of the Ear, Nose and Throat, Medical and Surgical. W. C. PHILLIPS. F. A. Davis Co., Philadelphia, 1913.

3192

History of Otology. A. POLITZER. Ferdinand Enke, Stuttgart, 1913.
Reviewed in THE LARYNGOSCOPE, Nov., 1913, p. 1117.

3194

Catarrhal and Suppurative Diseases of the Accessory Sinues of the Nose. R. H. SKILLERN. J. B. Lippincott Co., 1913.
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3197

Suppuration of the Labyrinth. W. UFFENORDE. Curt Kabitzsch, Wuerzburg, 1913.
Reviewed in THE LARYNGOSCOPE, Dec., 1913, p. 1179.

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to THE LARYNGOSCOPE.)

RADIOGRAPHY OF THE NASAL SINUSES.*†

DR. DOUGLAS MACFARLAN, Philadelphia.

Speaking generally, from a rhinologist's standpoint, results obtained from radiography of the nasal sinuses are so irregular and non-dependable that something more than a casual inquiry into this subject would appear valuable. The fact is, that many cases with beautiful clinical signs and symptoms when sent to be x-rayed return with plates so poor that it seems impossible to make a diagnosis from them. And yet diagnoses are hazarded and often radical operative work hangs on such decisions. To any one who will take the bother to look up the plates and the case histories in any of the larger hospitals or in private practices where even more care is taken, there cannot but come the conviction that there is a great discrepancy between the clinical findings and the evident value of the plates. The plates are usually notoriously poor and good plates are exceptional. It is especially difficult to get good x-ray findings from the sphenoid, the sinus that we need the most help upon from the roentgenólogist. At the present time, the value of clinical appearances and the results of transillumination are far out of proportion to the value of the x-ray, and yet with a little care and attention the latter can be made a most useful aid in diagnosis.

In this country Caldwell of New York first took up the subject and in a paper read before the Triological Society in 1908 epitomized in a clear and frank way the problems to be met. "An important feature of the diagnostic use of the x-rays in the nasal tract is that in this field mediocre work is useless or worse, and the very best that can be done leaves much to be desired. There is no mystery about this work and no justification for the statements occasionally heard to the effect that success in this field depends upon some trick which is the secret of a few. Excellent work has been done by a few surgeons and rhinologists who have given it the serious attention it demands and deserves.

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*Read at the meeting of the College of Physicians, April, 1914.

†Radiograms by Dr. Walter C. Barker.

"The comparatively few successes and many failures in the work cannot be charged to secrets in technic, but result partly from the fact that the amount of attention for good work has generally been underestimated. The difficulty of the work is easy to understand when we remember that the skiagraph is a complete shadow of everything lying between the source of the rays and the plate, and that the different objects cast stronger or weaker shadows according to their relative thickness and density."

Success in getting good plates depends almost entirely on three things:

Correct position; strong penetrating exposures, and fast plates. Failures can always be traced to some fault in the observation of these requirements.

As to the exposures and plates these matters of course had better be left in the hands of the roentgenologist; suffice it to say, however, that the penetrability or strength of the tube should be 8-10 of the Benoist scale, backing up a parallel spark of 4 to 5 inches. We have been using a 20 milampere current from a Waite and Bartlett Interrupterless, and with this and the tube-strength mentioned, have been giving lateral exposures 8 to 10 seconds, postero-anterior exposures 8 to 12 seconds.

The position of the head is all important and a thorough familiarity with the locations of the different sinuses in the different positions is essential. In working out the position for a certain sinus two principles should be kept in mind: (1) The heavy parts of the skull, the base and the occiput must be kept from superimposing on the sinus. (2) The pairs or couplets of cells must be kept from superimposing on each other (the sphenoids on the frontals).

The number of different positions are few, but are fully sufficient for the best results if care is taken in correct placing. Each position favors certain cells, as will be now described.

The Albers-Schoenberg position took the radiograph with the rays passing from behind through the cervical vertebra and the base of the skull then through the frontals to the plate. The shadows of the irregular bones of the base and the cervical vertebra make the position objectionable.

The brow position: Caldwell adopted a brow position which is well illustrated in Phillip's text-book. The line of the median ray is parallel to the glabella and the parietal eminences and at an angle

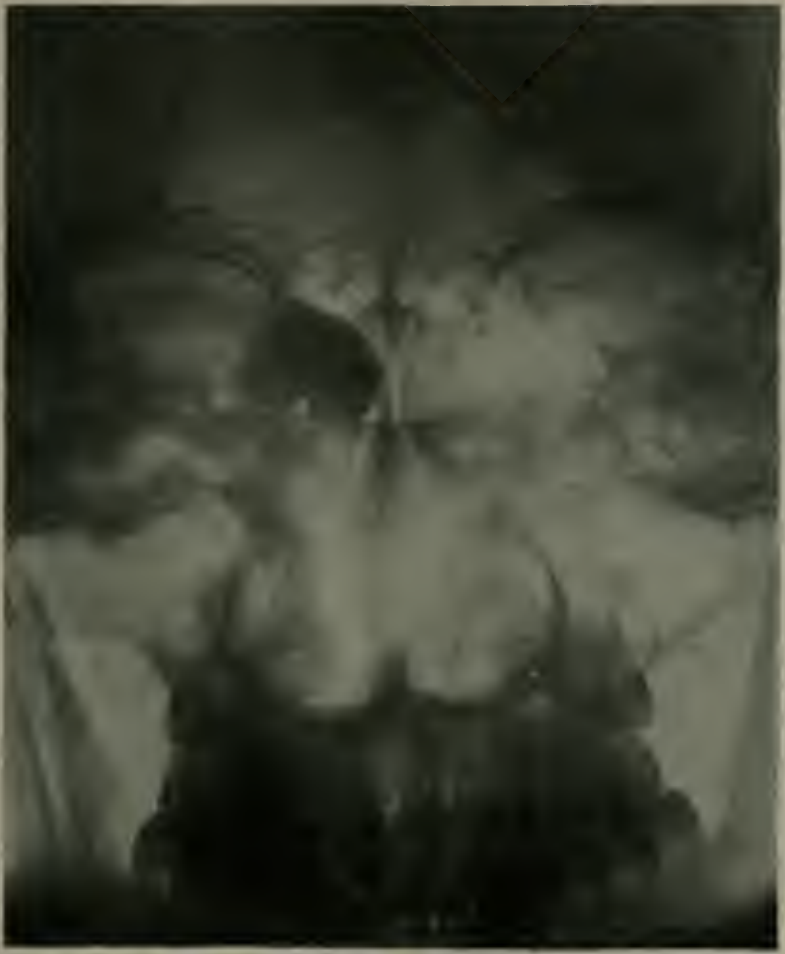

Figure 1. Brow position (Caldwell). Note partial injection of right sphenoid, septa in left frontal, shadow in right antrum region.

strikes the plate which is touching the tip of the nose and the forehead. In other words the patient is face downwards with his brow on the plate and the tube is above and in front of the occiput.

The position is practically the same as that in which Plate T was taken, the only difference being that in the latter the median ray is perpendicular to the plate instead of striking it at an angle. To get this the head is placed so that a line from the external auditory meatus to the pupil is perpendicular to the plate resting on the brow and nose. The median ray from the tube passes parallel to this line through the skull.

The position is a good one for taking both frontals and sphenoids and has as its only objection the tendency to bring the occiput, base and sphenoids all in the same region unless care is observed.

The frontals appear above and should show up well; the sphenoids are brought to the inner sides of the orbits, and with the ethmoids are often superimposed on the lowest part of the frontals. The antra, thrown down out of the way, are confused with the lower part of the orbit, more strictly speaking the orbits are thrown ahead of the antra. The typical dome-shape of the sphenoid is usually seen, the lower border of these cells showing as a straight horizontal line and the roof a dome-like half circle. The line of the occiput comes through the upper third of the orbit.

The chin position: The chin position with the head, face down, chin and the tip of the nose resting on the plate is excellent for pictures of the frontals, since it throws these cells high up free of everything. The antra show up well but the sphenoids are masked by their appearance in the turbinate region. The posterior ethmoids are usually superimposed on the sphenoids but the anterior cells will often be seen in these plates. The views of the septum and the turbinates are good. The base of the skull is low and on a line with the articulation of the teeth.

The extended chin position. Plate 3: The patient is prone with neck stretched out and chin thrown forward to its fullest extent. The point of the chin is elevated by slipping under it a shallow box or two and on top of these the plate rests. A line between the external auditory meatus and the pupil is horizontal to the plate. the tube is above, its median ray passing perpendicular to the plate and just anterior to the external auditory meatus. The position is ideal for the sphenoids. throwing them clear of everything and through the soft palate and down between the jaws. An excellent opportunity is had to compare the two cells as to size and shadow, and in most fair plates, the septum between the cells is plainly seen. The frontals show up well, for but little bone is passed through Other sinuses show up disadvantageously. Care must be taken to get the fullest extension, for otherwise the sphenoids are thrown into the heavy shadow of the jaws.

The eye position has been suggested by Pfahler to show up the sphenoids; the face is prone and inclined to one side so that the rim of the orbit rests on the plate. The sphenoids are projected through the orbits and show up somewhat obliquely superimposed. The effect is somewhat confusing.

Lateral views, Plate 5: Lateral views are of chief value in giving an idea of sinus depth and in showing sella changes. The pairs of cells are so superimposed as to make differentiation between right and left side difficult. Even the slight obliquity which you usually get will make possible the outlining of the individual cells but as the bulk of their bodies overlies, pathological differences cannot be made out. Since few of these views are distinctly oblique there is often a great confusion of lines particularly in the sphenoid region; the location of the cleinoid processes is particularly hard. Some help will be had out of this difficulty by observing the rami

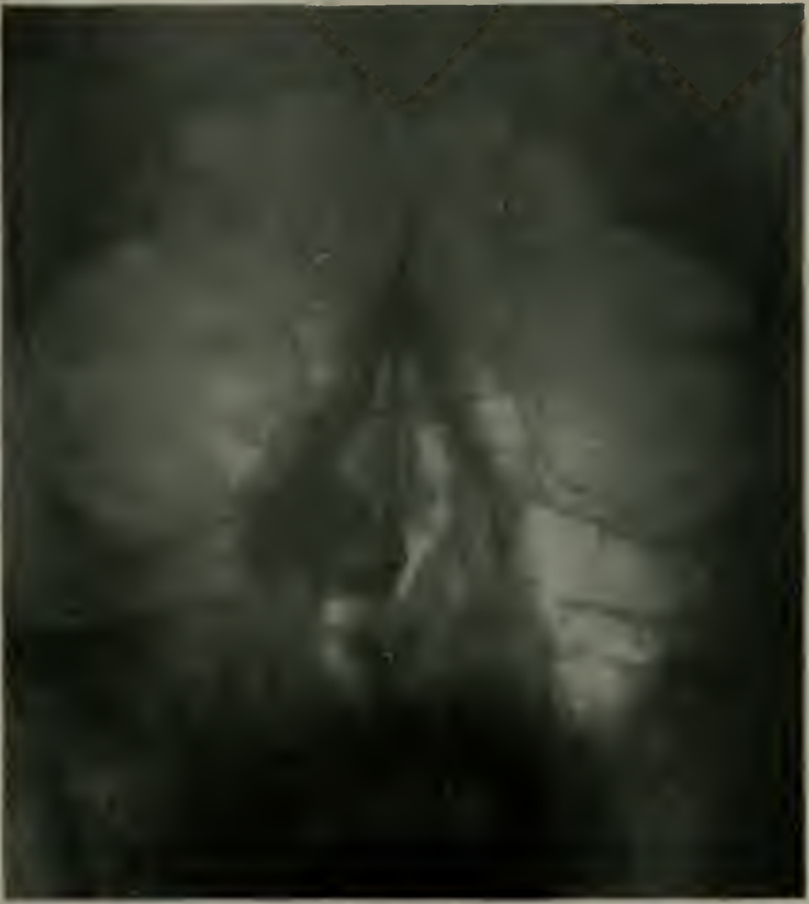

Figure 2. Chin position.

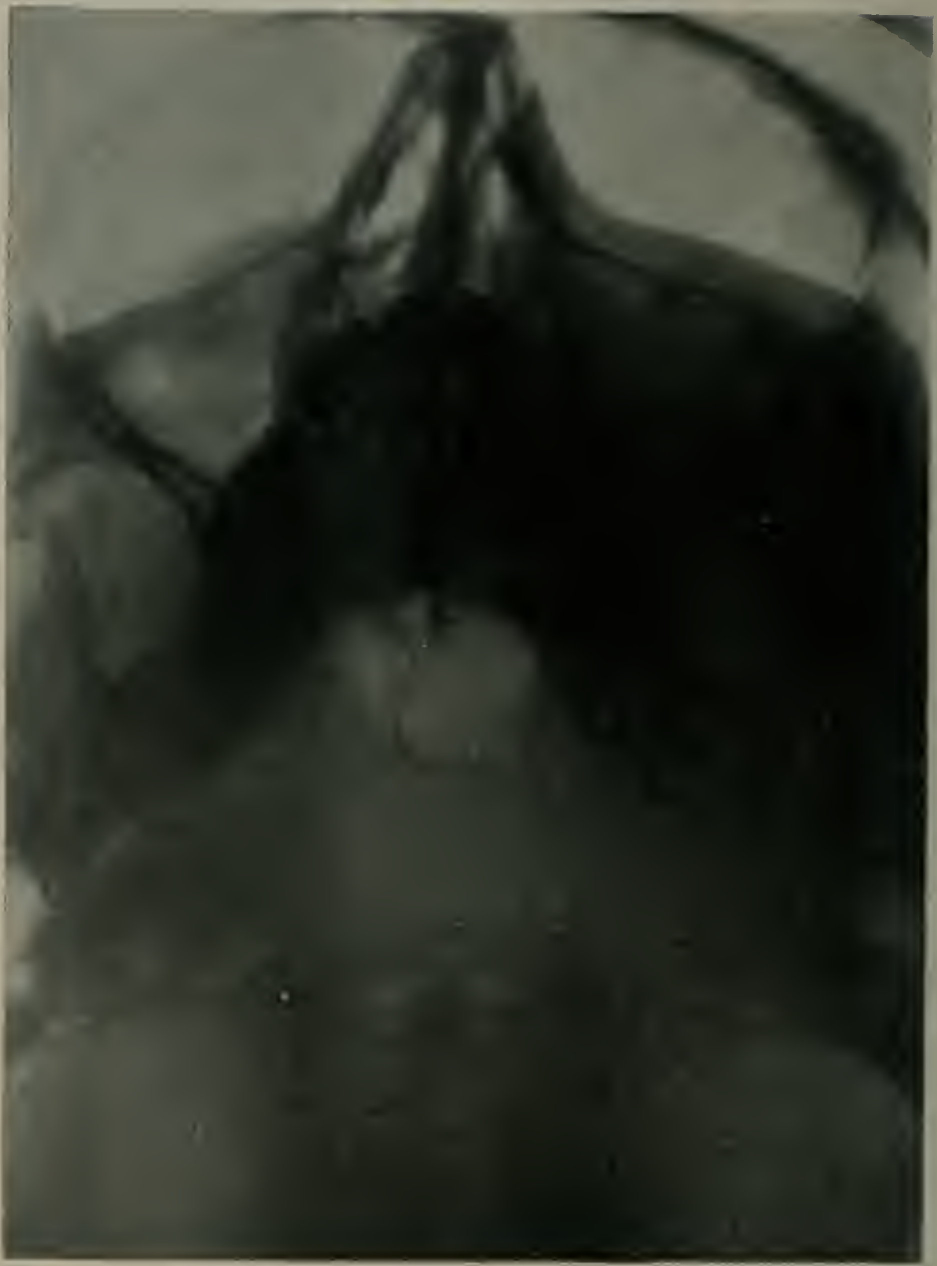

Figure 3. Extended chin position.

of the jaws and from them get an idea of the obliquity and its direction.

Occasionally there arises much difficulty in deciding upon which side of the skull certain objects are, for instance the light shadows of bone absorption, or the root or stump of a tooth. The study of a number of plates taken in a variety of positions carefully comparing and observing positions and directions will usually give the solution. The use of the stereopticon in looking at these lateral plates gives the most remarkable perspective, the cleinoids, sella and the sinuses stand out at times as though you were looking at the actual skull. Dr. Bowen, of the Pennsylvania Hospital, has an

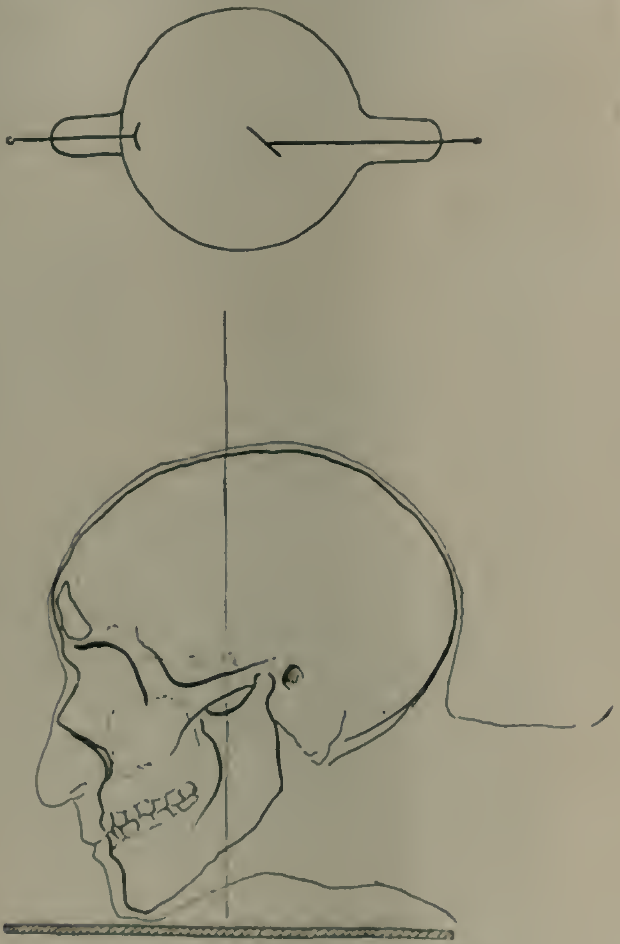

Figure 4. Diagram of extended chin position.

excellent scheme of getting two stereopticon views with three plates, with one vertical and two lateral exposures.

In these lateral plates the depth and height of the frontals are well seen, but for the expanse of these cells the postero-anterior view is best. The bean-shaped appearance of the sphenoids is characteristic, the roof of these cells or the floor of the sella in most

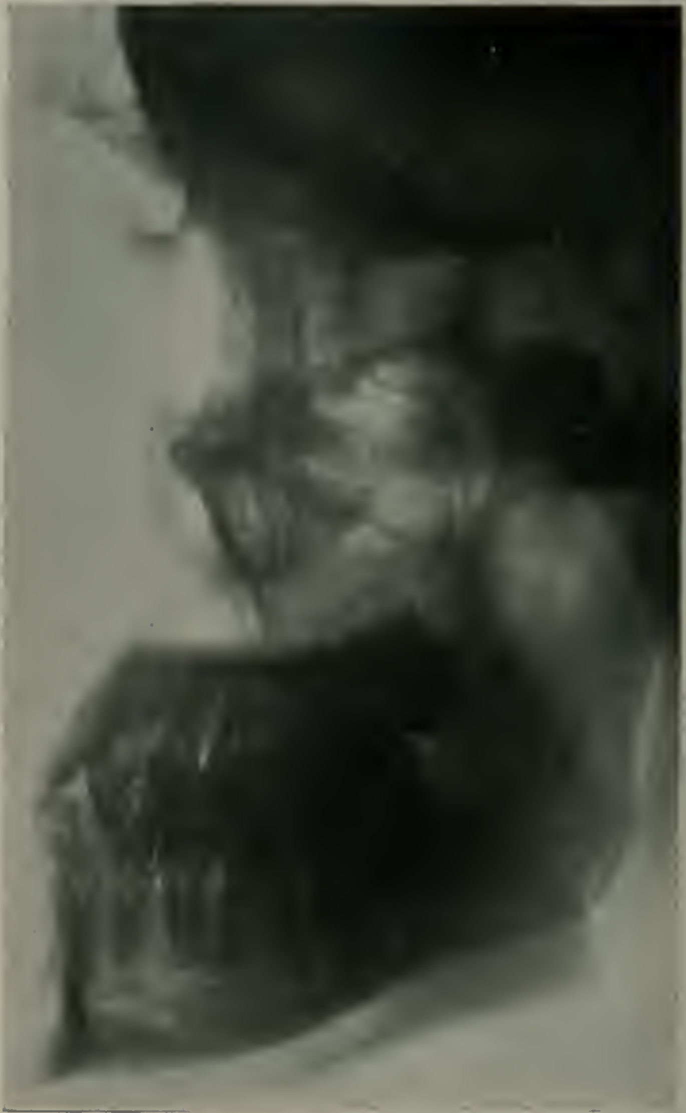

Figure 5. Lateral view. Small bead of bismuth remaining in sphenoid after injection two weeks previous. Note size of sphenoid, depth of frontals and square appearance of antrum.

plates shows up as very thin. The ethmoids if at any time distinguishable, are occasionally sharply defined in clear, well-exposed plates. The antra look like two oblongs, very different from the flat triangle or cone seen from the front. The mastoid cells, mandibular articulation and the hyoid bone often show well.

So much then for positions; the conclusions to be made are that certain positions are most suitable for certain sinuses. It is, however, unreasonable to expect a diagnosis from one or two plates; numerous plates should be taken in any case. Little difficulty should be had in getting good frontal and antrum pictures. Radiograms of the latter, the antra, are, however, of secondary importance since other means of establishing diagnosis are so convenient.

The frontals show up best in an extreme brow position; ethmoids are always difficult of diagnosis, but lateral plates will show their shadow best, they being in these views only superimposed one on other, that is one side on another.

Sphenoids had best be taken in all the positions and conclusions reached from all the plates. The extended chin position seems most ideal, and shows up what the other plates will not, the relations between the two cells.

It is well to recall, in interpreting shadows seen in sinuses, the facts first brought out by Caldwell. Radiograms of specimens of pus and exudates from various sources show that their opacity to x-rays is practically the same as that of normal salt solution or of pure water. He proved this by taking simultaneous radiographs of the various fluids in thin celluloid dishes. Working with dry and moist specimens, he showed the marked difference in shadows due to the moisture. The injection of the sinuses of cadavers gave similar conclusions. We can realize from this that persistence of the shadows in patients whose symptoms have subsided is of less grave significance than we once supposed. It may be due to a mere chronically thickened membrane or from the collection of thin mucus. Such persistence of shadows is often seen in transilluminations of the antrum where an infection has been of long standing, where good drainage has been established, and the case has apparently cleared up.

In this irregular way, then, I submit the subject from a nose and throat standpoint, believing that a better familiarity with x-ray sinus work and its problems will lead to a helpful co-operation that will give better results in the field of diagnosis. A better knowledge of the correct positions and correct exposures will certainly give us better plates.

1805 Chestnut Street.

IMPROVED METHOD FOR REMOVING THE POSTERIOR TIP OF THE INFERIOR TURBINATE.[*]

Dr. Max Lubman, New York City.

To remove the posterior tip of the inferior turbinate with the now prevalent methods is quite a difficult procedure even in skillful hands. The chief reason is that the wire loop of the snare runs parallel to the bone and the geometrical law "that two lines running parallel to each other can never cross" holds true even in the nose. In order to get the wire loop at an angle with the bone, the following methods have to be resorted to. The snare is passed directly backward along the floor of the nose, and when the end of the wire loop has reached the pharynx, the snare canula is directed backwards and slightly toward the median line of the pharynx until it, too, reaches the pharyngeal wall. This bends the wire loop at an angle towards the posterior tip of the inferior turbinate. The instrument is now withdrawn until the loop encircles the hypertrophy; the snare is then gradually tightened until the wire loop slowly excises the diseased mass. This method is objectionable because the bending of the wire loop upon the patient's pharynx will undoubtedly cause pain, and may also injure the mucous membrane of the pharynx. It is also unpracticable, because it cannot always be relied upon, as a spur or a hypertrophied middle turbinate is likely not to allow the wire loop to pass in its original bent form, but will straighten it out more or less.

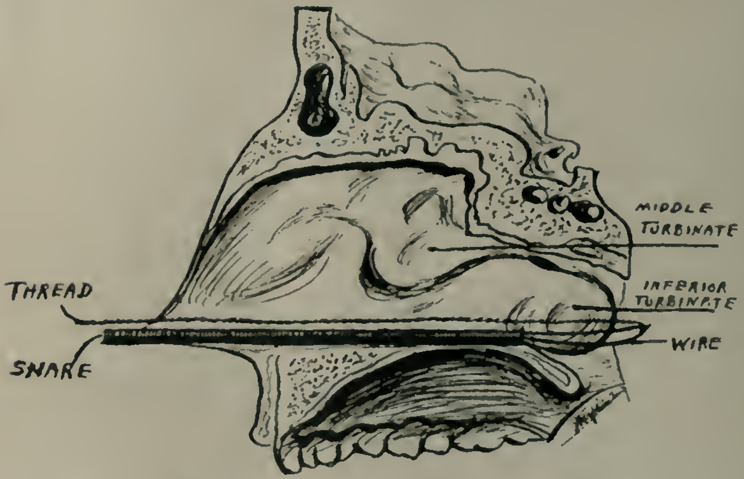

Figure 1. Wire on floor of the nose with thread attached.

Another method often used is that of posterior rhinoscopy. The patient is instructed to depress the tongue; the surgeon manipulates the snare with one hand and observes its movements by means of a mirror which he holds in the other hand. There is no advantage in this method; the disadvantages, however, are very evident, not many a patient can tolerate or co-ordinate enough to depress the tongue, allow the manipulation of a snare in his nose and a mirror in his throat which requires nasal breathing to make posterior rhinoscopy successful. These handicaps make the success of the surgeon difficult and improbable. I wish, therefore, to offer a very simple improvement which I find both effective and easy to manipulate. To the ordinary snare I tie a thread by means of a double sailor-knot which keeps it securely in the center of the loop. It is well to use a contrasting color of blue or black in order to make the presence of the thread easily detectible. I then introduce the snare along the floor of the nose slightly further than the tip of the inferior turbinate; the thread should be directed to the septal side; I then pull the thread with left hand. This act will bend the wire loop at right angles to the tip, thereby enabling the loop to encircle the hypertrophied mass. If the floor is very narrow, I pass the snare parallel to the septum but direct the thread to the outer wall; by pulling upon the thread outwards it will encircle the mass laterally. You can ascertain whether the loop is engaged around the mass to be removed by trying to pull the snare forwards. On finding that the loop is engaged tighten the snare and the mass is excised. One of the advantages of this method is that by means of the thread the surgeon can actually regulate the size of the mass to be removed.

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[*] Presented at the Clinical Society of Har Moriah Hospital, April 6, 1914.

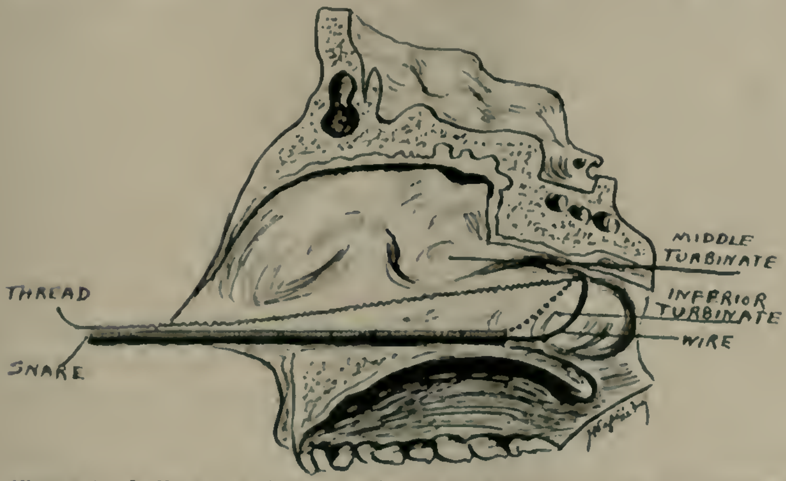

Figure 2. Pulling the thread bends the wire and encircles the turbinate mass.

78 East Fourth Street.

PHYSIOLOGIC AND PATHOLOGIC RELATIONS OF THE EYE AND ACCESSORY SINUSES OF THE NOSE.*

Dr. C. B. Wylie, Morgantown, W. Va.

After selecting this subject which has been of considerable interest to me recently, I began looking up the literature to ascertain what other men had said on it in order to make comparisons, and was soon brought to a realization of the fact that everything I could possibly say has already been said by a number of very eminent men, so that I fear what I may present on this subject will be more or less a repetition of what has already been said, the effect of which will carry much more weight than anything which I might say. However, after giving a brief anatomical description of the relationship, both of the osseous and nervous anatomy of the eye to the accessory sinus of the nose, I shall attempt to describe a few interesting cases which I have had in my practice during the last year.

In order that we may have a comprehensive idea of the relationship existing between the eye and the accessory sinuses of the nose it is necessary to have a fair anatomical knowledge, not only of the osseous parts but of the sensory nerve distribution as well. Without this, an intelligent appreciation of the nervous and pathological reflex symptoms would be difficult of interpretation.

With the greater portion of the floor of the orbital cavity in close proximity to the maxillary sinuses, the internal lateral wall to the ethmoidal and sphenoidal sinus, and the superior plate anteriorally to the frontal sinus, we can readily appreciate the close anatomical relationship existing between these parts. While as a rule, a thin, bony wall separates the sinuses from the orbit, it is not infrequent that we find dehiscences of the bone which leave only mucous membrane dividing them.

The nervous anatomy can best be understood by briefly tracing the sensory branches of the fifth nerve from the Gasserian ganglion to the termination of its branches; beginning with the Gasserian, which lies in a depression at the inner end of the petrous bone, the nerve divides into three branches—the ophthalmic, the superior maxillary and the inferior maxillary, the two upper branches being entirely sensory, while the lower trunk unites with the motor root supplying muscles of mastication.

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*Read before the American Academy of Ophthalmology and Oto-Laryngology, Chattanooga, Tenn., October, 1913.

From the ophthalmic division there is given off a meningeal branch to the tentorium cerebelli and supplies nerves of sensation to the eyeball, conjunctiva, lacrimal gland, nasal fossa and skin of the nose, eyebrow and forehead. It receives branches of communication from the cavernous plexus of the sympathetic and from the third, sixth and occasionally the fourth; the lenticular ganglion situated in the orbit receives a branch from the nasal nerve and sends nerves to ciliary muscle and iris. The superior maxillary division gives off a meningeal branch and supplies nerves of sensation to the upper teeth, lip, cheek, temple and the lacrimal apparatus.

The spheno-palatine ganglion, which lies in the spheno-maxillary fossa, receives a branch from these nerves, one from the carotid plexus (the Vidian), a branch from the facial, and sends nerves to the pharynx, palate, turbinate bones and floor of the nose.

The association of the nasal and orbital nerve-supply is even closer than that of the circulatory system. The nasal nerve, which is a branch of the ophthalmic division of the fifth cranial nerve, passes through the orbit to the anterior ethmoidal foramen, then back to the cranial cavity in the region of the cribriform plate of the ethmoid, which it pierces to enter the nasal cavity to supply its anterior half. Its orbital branches are the two long ciliary nerves, the intra-trochlear nerve and a branch to the lenticular ganglion.

The ophthalmic artery, which sends branches to all of the orbital structures, sends off anterior and posterior ethmoidal branches and the nasal artery. Returning from the nose the ethmoidal veins enter into the superior ophthalmic vein, and as the orbital veins have no valves blood may pass in any direction.

The venous plexuses of the turbinate bodies empty into the pterygoid plexus and are in direct communication with the orbit by way of the branch to the inferior ophthalmic vein. Thus it is easy for organisms or their toxic products originating in the nasal accessory sinuses to reach the interior of the eye through the ciliary vessels which are branches of the above-mentioned arteries and veins.

The chronic forms of sinusitis present a large number of eye symptoms with comparatively no manifestations of nasal trouble. In the suppurative form of sinusitis, the middle turbinate body will be found in a state of hypertrophy, and the ethmoidal cells will break down under slight pressure; the discharge will be thick and tenacious, with usually more or less odor, depending on the extent of retention of pus and necrosis.

In the chronic non-suppurative form of sinusitis, the ocular manifestations will be more obscure and uncertain than in the suppurative variety. In this form the middle turbinate is somewhat enlarged, which will probably show some polypoid degeneration on its under surface. If the middle turbinate lies close to the external wall, the polypoid degeneration may not be manifest in the early stages, but later will appear at the lower margin at the anterior end of the turbinate. The ethmoidal cells are generally filled with polypi, with frequent destruction of the intervening partitions due to pressure. Along with this condition, oftentimes, on account of the intra-sinus pressure, ocular structures may be affected through dehiscences in the bony partition, resulting in pressure upon the extra-ocular muscles, causing a train of symptoms tending to eye strain and more or less nervous phenomena.

Both of these forms obstruct more or less the circulation, and account for symptoms caused by the vascular changes.

The orbital manifestations of chronic hyperplastic ethmoiditis are of special interest, not only on account of the obscure picture which they often present but also on account of the frequency with which they appear. These are naturally of a mechanical origin, due either to the intra-cellular pressure from the hypertrophied mucous membrane, or from stasis in the hematogenous or lymph channels, or both. These may interfere with the mobility of the globe, irritate the optic nerve through pressure, produce changes in refraction or disturbance of physiological lacrimation.

The subjective symptoms consist of scotoma, neuralgia, pain in the eye, ciliary neuralgia and photophobia. In severe cases vaso-motor disturbances such as hyperemia of conjuctiva and edema of eyelids and peri-orbital tissues may occur. The appearance of these reflex neuroses is but to be expected when one recalls that the orbital and nasal cavities are supplied by the same sensory nerve.

The following cases have been selected because they give definite ocular symptoms without any evidence of previous sinus involvement, as has been demonstrated by the promptness with which ocular symptoms disappeared when the sinus trouble was corrected.

Case 1: Miss A., age 35, was referred to me with a history that for about two years she had had headaches, deep-seated between the eyes, and at times ocular pains. The symptoms were aggravated by use of the eyes for near work, especially during the menstrual period, and had been growing progressively worse.

On examination, vision in both eyes was practically normal. Fundus examination showed considerable congestion of the optic disk; otherwise a normal fundus. On examining the nose, a badly deflected septum very much thickened at the posterior end was found, with considerable hypertrophy of the right middle turbinate.

An operation was advised for correction of the trouble. The hypertrophied portion of the middle turbinate was removed and a submucous resection of the septum done. On removing the deflected portion of the vertical plate of the ethmoid bone, on approaching near its posterior border, a large healthy penumatic cell was encountered with apparently no opening leading from it. While cutting away the edges of the cell with the bone-biting forceps, another cavity was broken into, which proved to be the sphenoidal sinus filled almost completely with granulation tissue. After making the opening as large as possible into this cell, two large masses of granulation tissue were removed, which proved to be a complete cast of the sinus. As there was no opportunity for after-treatment through this channel, a search was made for the natural opening in the right nostril and was found to be quite small. A generous opening was made down to the floor of the sinus, and each nostril packed to co-apt the layers of the septum. After the septum wound had healed and the sinus was treated for two weeks, the headaches and ocular pains disappeared and so far there has been no return of the trouble.

Case 2: Miss B., age 25, stenographer; for nine months had been suffering from repeated attacks of deep-seated headaches, far back between the eyes, with considerable mental depression. Examination showed vision of the right eye 20/20, left eye 20/40. Fundus examination was negative.

There was no history of nasal trouble, but as the eye symptoms gave no definite clue to the cause, an examination of the nasal cavity was made, which disclosed a very much enlarged posterior end of the left middle turbinate.

I advised the removal of this hypertrophied part. After snaring off about one-third of the posterior end I was able to locate the opening of the sphenoidal sinus. A canula was then passed into the sinus and a considerable quantity of foul-smelling, dark-green pus was syphoned out, after which on searching the sinus with a probe, I discovered what appeared to be a dehiscence in the bone in the left wall near the roof. After enlarging the opening, the patient was placed in a recumbent position and the sinus filled with 12 per cent phenol-glycerin which was allowed to remain for twenty minutes. This was repeated every other day for about two weeks, at the end of which time the headaches and mental depression had both disappeared, with vision in both eyes 20/20.

Case 3: Mr. C., age 32, farmer, complained of pain in the eyes, photophobia and more or less dimness of vision for the last five months.

On examination, vision of right eye was found to be 20/20, left eye 20/40 with pronounced displacement of left eye outward, with marked diplopia, one image being more distinct than the other. There was no special tenderness or discoloration of the eye; fundus examination showed congestion of the disk and retina.

Nasal examination disclosed an enlarged middle turbinate on the right side with polypus showing under it. On removing the anterior end of this bone, a small polypus came away and what appeared to be a pedicel of another growth, which had been cut off by the snare, was projecting into the opening. This was grasped by forceps and after considerable manipulation and traction was removed and proved to be a polypoid growth one and one-fourth inches long and three-eighths of an inch broad. The direction from which it came disclosed the fact that the bulla ethmoidalis had been destroyed and that there was a dehiscence in the orbital wall, permitting the growth to pass through from the ethmoidal cell to the orbital cavity, and back part way around the globe.

This opening was packed lightly with antiseptic dressing and in ten days time had entirely closed. Two weeks later the globe had receded to its normal position, vision became 20/20 in both eyes, and binocular single vision was again restored.

Case 4: Mr. D., age 35, bookkeeper, had for some six months complained of headaches and inability to use his eyes for close work with great aggravation of symptoms, with at times intraocular pains which radiated to occiput.

On examination his vision in both eyes was 20/30 with some blurring; fundus examination showed hyperemia of the disk with some congestion in the retina, both eyes being much the same.

Nasal examination showed enlargement of middle turbinate on both sides, pressing both on the septum and the lateral wall. Some plegets of cotton, previously saturated with adrenalin, were placed in each nostril and were allowed to remain about ten minutes. After they had been removed, the patient expressed a feeling of greater comfort in his eyes than he had experienced in a long time.

A partial removal of each middle turbinate was done, and after healing had taken place, the ocular symptoms entirely disappeared, and in two weeks time vision in both eyes was 20/20 and has remained so to the present time.

Case 5: Mr. E., age 40; for the last two years had complained of headache and photophobia, with more or less vertigo upon using the eyes for close work. Vision 20/20 in the right eye, 20/40 in the left eye; fundus examination showed retina pale and vessels but partly filled.

On examining the nose, the septum was found to be deflected to right side, pressing on the posterior half of the middle turbinate bone. This was corrected by a submucous resection of the septum after which the ostium of the sphenoid sinus was located, which was unusually small.

On passing a canula into the sinus, the mucous membrane was found to be very much thickened and spongy, showing a chronic non-suppurative condition. The opening was enlarged down to the floor of the sinus, the patient was placed in a recumbent position and the sinus filled with 10 per cent phenol-glycerin, which was allowed to remain fifteen minutes. This treatment was repeated every other day for ten days, at the end of which time the symptoms complained of had all disappeared; vision was 20/20 in both eyes and he was able to do close work with comfort.

The immediate and pronounced favorable results obtained from surgical treatment of these accessory cavities should be further proof of the relationship existing between the nose and the eyes.

The opinions of different investigators differ somewhat as to which sinuses are most frequently involved in producing these obscure symptoms. I think the consensus of opinion, however, is that the ethmoidal, sphenoidal and maxillary sinuses in the order named, are most frequently involved.

I am in hearty accord with Brawley, who says: "When one considers the very intimate relationship between the orbital contents and the nasal accessory sinuses by way of the nerves, blood vessels and lymphatics, it is remarkable that sinus empyema does not oftener cause serious ocular disease."

When we consider that the orbit is from one-half to two-thirds surrounded by bony cavities, which are in direct communication with the nose, it is not hard to realize that pathological changes of these cavities may profoundly affect the ocular structures. The thickness of the bony wall between the orbit and sinuses varies considerably and in the majority of cases is quite thin, varying from one-fourth to two millimeters, and at times is found to contain dehiscences of variable size, which admit of one cavity being readily affected by pathological conditions of the other; the influences are probably the most marked where the optic chiasm and nerve are in such close proximity to the sphenoidal sinus.

The liability of the optic nerve to become affected in sphenoidal sinus involvement is due in part to the fact that the nerve is not in a strict sense a nerve at all, but a central intercerebral cord (Spalteholz) having covering similar to the brain and spinal cord, and the fact that it has a higher specialized function, makes it more easily affected by pathological changes around it; while at the same time, the absence of sensation makes disease in this tract insidious.

As we go into the minutia of the parts involved and study more carefully their relationship, and by careful observation of clinical cases, together with transillumination and skiagraphic plates thus become more able to appreciate what many of the hitherto ill-defined and obscure symptoms mean, we must conclude that we have long been groping in the dark as to the cause for many of the abnormal ocular manifestations; but a closer study and a more careful watch of our cases of this nature cannot fail of a satisfactory explanation for many of them.

Treatment of Ozena by Sulphurous Thermal Water. ARMENGAUD. *Revue hebd. de Laryngol,.* Mar. 7, 1914.

In addition to the constitutional benefit derived from these baths, the local effects were quite marked in the cases reported. The local treatment consists of a thorough irrigation of the nasal cavities with thermal water, this being continued for five minutes, or until the mucous membrane is entirely free of crusts and secretions. The benefit persists for several months after the treatment, which should be repeated at intervals. Among the places which are cited as being of benefit are Cauterets, Luchon, Barege, Challes and Uriage.

SCHEPPEGRELL.

ATROPHIC RHINITIS, TREATMENT WITH SCARLET RED.*

DR. W. C. WOOD, Philadelphia.

In the October, 1913, issue of THE LARYNGOSCOPE, Dr. K. K. Wheelock, in an article entitled "A new and efficient treatment of atrophic rhinitis," cited the results he obtained in a number of cases which he treated with scarlet red. These results so far surpassed any which I had ever been able to obtain by the various methods of treatment and with the numerous applications which have from time to time been suggested, that I decided to try this dye on the atrophic cases which were visiting the dispensary.

We all recognize the fact that the more numerous the drugs recommended in the treatment of any given condition the less do we usually know about that condition. This has been particularly true of atrophic rhinitis, and I believe that most of the benefit which has been derived in the past has been due not so much to the particular drug or preparation used but rather to the thorough cleansing of the parts at regular and frequent intervals. I have failed to produce any marked change in the appearance of the mucous membrane itself and have always seen a return to the previous disgusting condition just as soon as treatment has been discontinued. This has been due, I believe, to the fact that so little has been definitely known as to the etiology of the condition, and as proof of our uncertainty of the etiological factors we have only to go over the various tables as given by the authorities on the subject.[1] Perez[2] claimed to have discovered a specific agent, and asserted that every case originated by infection from another patient or from the muzzle of a dog. DeSimoni,[3] on the other hand, has "inoculated the normal mucous membrane with the Loewenberg-Abel bacillus, the diplococcus lanceolatus of Fraenkel, and also with crusts from cases of ozena, and in no instance did he succeed in reproducing the disease."

Congenital narrowness of the nasal fossae, undue patency of the nasal chambers, and arrest of development of the lower turbinals have been given as possible structural causes, but I believe they act only indirectly as factors in the production of atrophic rhinitis.

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*Read before the Episcopal Hospital Clinical Society, Philadelphia, March 16, 1914.

Others claim it to be secondary to purulent rhinitis of childhood, ethmoidal osteitis, rarefying osteitis of the lower turbinals, accessory sinus disease, focal suppuration in the nose, accessory cavities, or post-nasal space, atmospheric desiccation and bacterial invasion.

Considering carefully the findings of the many observers, and considering also the clinical evidence presented by the cases which we see ourselves, the whole matter seems to narrow itself down to some condition which produces a muco-purulent discharge in the nasal chambers. If this be true, the following group of conditions would seem to be responsible, directly or indirectly, for the chronic rhinitis in question:—Congenital, developmental, or acquqired deformities resulting in a widely open or extremely narrow nasal chamber, suppuration from the accessory sinuses, and growths in the naso-pharynx with suppuration.

There is no doubt in my mind that the muco-purulent rhinitis of childhood precedes the atrophy in a great majority of cases, and that this discharge is the result either of a large adenoid or of suppurative sinus disease, or both, seems all the more probable when we remember the following facts:—"Suppuration in the frontal and maxillary sinuses seldom gives rise to symptoms of ozena, but it is not at all uncommon for pus in the sphenoidal and posterior ethmoidal cells to do so. Now these cells are present at birth and are close to the post-nasal space, so frequently the seat of suppuration in early childhood."[4]

With these facts before us, it would appear to me that the atrophy is not due directly to the deformity or obstruction present, with the resulting limited or increased space in the nasal chamber, but rather to the fact that the mucous membrane is being constantly bathed with a muco-pus, this going on over a long period of time, attended naturally with a chronic inflammatory condition, with circulatory and tissue changes and finally the atrophy, loss of sense of smell, altered secretion, and consequent crust-formation.

So much for the etiology of the condition. Now as to the treatment of these cases. Once the condition has been recognized, it becomes our duty immediately to determine, if possible, the underlying cause and to remove it. A deviated septum should be straightened as soon as the chambers have been made reasonably clean; the muco-purulent discharge, if still present, should be traced to its source and that region treated. Should there prove to be a large adenoid in the naso-pharynx, it should immediately be removed. If, on the other hand, the discharge comes from one or more of the sinuses, the condition should be properly and immediately treated, either by washing and applications, or by surgical means, as the case may demand.

Having either failed to find the original cause of the atrophy, or having found and removed it, we must now turn our attention to the atrophic condition itself, and it is here that we have, as a rule, been unable to effect a cure The removal of the cause, where it has been found, and careful treatment afterward has in many cases benefited the patient, at times arresting the process, stopping to some extent, at least, the formation of crusts, and decreasing or even eradicating the ozena, yet the atrophy of the tissues themselves remained, and many of the minor, yet disagreeable symptoms, persisted.

It is a peculiar fact that in a large number of cases, the atrophic condition is called to our attention for the first time long after the original cause has disappeared, and in spite of the fact that the patient must have had catarrhal symptoms over a long period of time. However this may be, the large majority of cases of atrophic rhinitis which we see present simply an atrophy, ozena, crust-formation, and in many cases, especially those of long standing, a loss of the sense of smell, and it is this end-group of symptoms which has seemed almost hopeless, requiring treatment over an indefinite period of time, and which relapse to the former disgusting condition just so soon as treatment is discontinued.

I have followed Dr. Wheelock's suggestion and used scarlet red in all the atrophic cases coming to the dispensary; and I believe the results obtained are just as noteworthy as those in his cases. Whether these cases will relapse after the discontinuance of treatment or not remains to be seen, but there is no doubt the results obtained over the short period of time I have used scarlet red far surpass any I have been able to obtain in the past. No case failed to show marked improvement in two weeks after the initial treatment. The crusts almost entirely disappeared in this length of time and continued to decrease in quantity with each treatment, until they finally disappeared. The mucous membrane resumed its normal color and thickness, and the ozena was no longer noticeable. This has been the history of all the cases under treatment and I will outline briefly the history of one of the most marked of the group.

Mrs. J. B., age 46; injury to nose at age of 10. This was followed, evidently, by a profuse purulent discharge which lasted about three years. The discharge then decreased but she says she has had "catarrh" with some discharge ever since. Some three years ago the crusting and ozena became so marked that she applied at one of the dispensaries here in the city for treatment. She first came to the Episcopal Hospital dispensary about one year ago and at that time presented the typical symptoms of atrophic rhinitis. The crusts were large, forming casts of the nasal chambers; there was a marked ozena and an entire loss of the sense of smell. She stated at that time that she had not been able to detect odors for about two years. Treatment was immediately started, the chambers being thoroughly cleansed and various applications made. The application then used, which seemed to do the most good, was a saturated aqueous solution of potassium permanganate, but the crusts and ozena never entirely disappeared, and at no time did she regain the sense of smell.

About December 1, 1913, I started using scarlet red and the results were almost incredible. The crusts and ozena disappeared, the membrane itself thickened and regained its normal color, and to my surprise, after about six weeks' treatment, she told me she was able to smell. I held a bottle of ichthyol under her nose and, with a look of disgust on her face, she remarked that the odor sickened her. I am, therefore, very naturally delighted with the results so far obtained and only hope that they may be as lasting as they were prompt.

In closing I will give an outline of the technic employed. In the first place I originally applied the scarlet red ointment which is used here in the surgical dispensary. This I am told is a 10 per cent ointment. I found, however, that was too stiff, rolling up and falling from the turbinals as fast as it was applied. The druggist then thinned it down for me with liquid petrolatum until we had an ointment which would spread nicely over the turbinals and adhere to them. This resulting ointment was a little over 5 per cent.

I first applied hydrogen peroxid to both nasal chambers and thoroughly removed all crusts. The nose was then carefully sprayed with an alkalin, antiseptic solution, after which the scarlet red was applied to every portion of the mucous membrane in the nose, and the patient instructed not to blow the nose immediately but to wipe the secretions away as they appeared at the external nares. There seemed to be no noticeable reaction after the application, nor did the patient complain of any disagreeable sensations.

After a few treatments, however, the patient notices a stinging sensation after the scarlet red has been applied, which, together with the return of the sense of smell, would seem to indicate a regeneration of the nerve filaments, an observation made also by Dr. Wheelock in his report.

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A Case of Local Tuberculosis of the Nasal Mucosa. C. COMPAIRED. *Revue hebd. de Laryngol,* April 25, 1914.

Nasal tuberculosis is rare, only 177 cases having been reported in rhinologic literature. Poutchkwosky observed only three cases in his large clinic and Compaired saw only one case in 25 years of practice. In the case reported the extirpation and cauterization of all the diseased tissue was followed by a cure without which there would probably have been a diffusion of the diseased process into the general system.

SCHEPPEGRELL.

Angioma of the Nasal Alae. RENE-CELLES, *Revue hebd. de Laryngol,* April 11, 1914.

As in other regions, angiomas are accidental productions due to the dilatation and multiplication of the vessels which transmit the blood from the arteries to the veins. Angiomas of the nasal alae are rare. They may cause hemorrhage or difficulty of breathing, if sufficiently large. In the cases reported, the treatment consisted of electrolysis or excision, according to the case.

SCHEPPEGRELL.

SURGERY OF THE FAUCIAL TONSIL AS IT RELATES TO THE FUNCTIONS OF THE TONGUE AND SOFT PALATE IN THE PRODUCTION OF VOICE.*

DR. G. HUDSON-MAKUEN, Philadelphia.

The faucial tonsil differs from other tonsils chiefly in respect to the conditions attendant upon its location in the pharynx. The pharyngeal tonsil hangs pendant from the smooth, bony and aponeurotic surface of the vault, and the lingual tonsil is attached to the single muscle forming the base of the tongue, whereas the faucial tonsil has a more or less close relationship and in many instances actual attachments, not only to the intra-pharyngeal aponeurosis, which for convenience sake has been called the capsule of the tonsil, but also to the following important phonatory and articulatory muscles:—namely, the superior constrictor, the palato-pharyngeus, the palato-glossus and the lingual muscles. So closely and intimately is the faucial tonsil related to these important organs that in its normal state it forms with them a beautiful and unique mechanical structure varying in outline and presenting the recesses and half arches or columns which give to the lateral wall of the pharynx its distinctive acoustic characteristics. The location of the faucial tonsil, however, in the very midst of this network of muscles renders it particularly liable to infectious diseases, and therefore its surgery has come to be a matter of considerable importance.

There are two kinds of tonsillar surgery and they may be broadly designated as radical and conservative or palliative. Radical tonsillar surgery, as its name indicates, aims to enucleate the gland, or failing in this to remove as much as possible of it including the capsule, while conservative or palliative surgery aims to remove only so much of the gland as is obstructive, and at the same time to so open up diseased crypts and deep retention-pockets that satisfactory drainage to the tonsillar region is established without interfering in any way with the characteristic structure of the pharyngeal walls.

The modern tendency is toward radical surgery of the tonsil, and this is probably due to a desire to be thorough and to be sure of removing all sources of infection.

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*Read before the Division of Surgical Specialties of the Clinical Congress of Surgeons of North America, Chicago, November 12, 1913, and by invitation before the Philadelphia Laryngological Society, March 17, 1914.

Formerly the surgeon was satisfied with so-called tonsillotomy or the removal of the projecting portion of the gland, but this operation fell into disrepute largely because it resulted in the formation of adhesions between the cut portions of the gland and the faucial pillars, and a sealing of the crypts at their point of section; thus encouraging the formation of numerous retention-pockets which became hot-beds of infection and defeated the very purpose for which the operation was designed.

The tonsillotomy or section of the tonsil as it is usually made is in the wrong plane of the tonsil. If it were made more nearly in the horizontal instead of the vertical plane, thus removing the upper pole including the supra-tonsillar fossa and leaving the lower pole intact, it would be a much more satisfactory operation and it would meet nearly if not quite all the requirements of a radical tonsil operation.

Tonsillotomy, as it is usually performed however, is not worthy of being classed among the conservative tonsil operations, and like so-called surface cauterization its practice should not be generally recommended. But there are other conservative procedures which are worthy of consideration. I refer to those which may result in giving good drainage to the diseased tonsillar crypts and to the tonsillar fossa without removing the entire gland and without doing injury to the capsule or to the palatal muscles or the mucous membrane covering them.

During my early apprenticeship in surgery I devised a knife with the blade at an angle of about 120 degrees to the handle, for the purpose of conservative tonsillar surgery. Many similar knives have been devised from time to time by other surgeons and for a similar purpose, namely to open up diseased tonsillar crypts and other retention-pockets formed by various inflammatory adhesions. My custom has been, after freely opening the pockets with the sharp knife, to sear the edges with the actual cautery; thus preventing a union between the cut-surfaces and causing also a marked diminution in the size of the gland itself.

Someone has said that in doing a little good one should take heed lest he do a great harm, and this injunction is particularly applicable to the surgeon who operates in the region of the pharynx.

The two considerations which should actuate us in the performance of tonsillar surgery are: first, to improve the general health of the individual, and second, to improve his voice. While these two considerations are not strictly speaking antagonistic, yet it is unfortunately true that an operation upon the tonsils may improve the general health of the individual and at the same time do a grave injury to his voice. The converse of this proposition, however, is not equally true because any operation that improves the voice must of necessity at the same time improve the general health, because good health is absolutely essential to good vocalization.

It goes without saying that no surgical operation is ever indicated in a normal pharynx because, forsooth, the faucial tonsils may have some slight and benignant function in the human economy, although only a few of the younger of us have reached absolutely definite conclusions in reference to this matter. I am one of those who take it for granted that the faucial tonsil has important bactericidal and protective systemic functions, and I am convinced beyond doubt that in its normal state at least it has some very important mechanical functions which are particularly operative in the production of voice and speech.

The lateral walls of the normal pharynx present, as I have said, certain distinctive structural characteristics, and in this respect they bear a close resemblance to the lateral walls of the larynx. These distinctive structural characteristics—and I refer particularly to the anterior and posterior half arches of the palate with the tonsils separating them and directing their muscular action—are not biological accidents or variants, but they are always present, and until attacked by disease and except in respect to their size they are always practically the same.

Moreover, the soft palate, the integrity of which is so essential to the distinctive structural characteristics of the pharynx, has important muscular connections not only with the tongue but also with the larynx itself. It will be observed, therefore, that the three most important peripheral organs of phonation and articulation—namely, the soft palate, the tongue and the larynx—are anatomically and physiologically inter-dependent, and they also have many points of similarity.

I have called attention elsewhere to the importance of the soft palate as an organ of phonation and articulation and I have especially emphasized its valvular action in the pharynx and its cord-stretching action in phonation through its connection with the larynx by means of the palato-pharyngeal muscles.

The soft palate, the tongue and the larynx are similar in that they are all freely movable organs, and their position at any particular instant during phonation and articulation varies not only as it relates to each one of them individually but also as it relates to the more or less fixed spinal column. These variations in position take place with great rapidity and great precision, each particular tone or quality of voice in singing and each inflection in speaking requiring its own particular palatal, lingual and laryngeal position. The close anatomical relationship of these organs due to their muscular attachments makes the position of each one of them dependent largely upon that of the others. A low-hanging soft palate, for instance, which has become so, owing to a defective action of the levator muscles will result not only in a faulty position of the larynx, but also in a faulty action of the vocal cords.

Paresis of the palatal muscles, however slight, always brings about a corresponding disturbance of the laryngeal musculature. In other words, owing to the anatomical and physiological interdependence of these organs, palatal insufficiency always results in laryngeal insufficiency and the corresponding forms of vocal disability. The palatal muscles are virtually and practically extrinsic laryngeal muscles, the palato-pharyngei having direct connection with the larynx, while the palato-glossi have an indirect connection with it through the muscles of the tongue.

This brings us to a consideration of the faucial tonsil in its relation to these important organs of phonation and articulation. There are two kinds of faucial tonsils—the normal or physiological and the abnormal or pathological tonsil. Just as the normal tonsil is essential to the normal structure of the pharynx and helpful to the normal action of the palato-lingual and palato-laryngeal muscles in voice-production, so the abnormal tonsil may cause distortion of the pharyngeal structures and interfere with the action of the muscles.

The distinctive anatomical characteristics of the faucial tonsil are largely incidental to its location in the pharynx. The somewhat irregular folds found in the lymphoid tissue in the vault of the pharynx and the follicular character of the so-called lingual tonsil give way to the more highly developed lacunae and crypts of the faucial tonsil, these differences of structure following as a natural consequence of its more or less concealed or buried position between the palatal pillars.

The faucial tonsil is not a homogenous organ but is rather complex both in respect to its development and in respect to its structural arrangements. The rudiments of the gland are laid down in the dorsal prolongation of the second branchial cleft during embryonic life, and the sinus in which it develops is divided later by a fibrous fold into an upper and lower portion. This ingrowing or intra-tonsillar fold as it has been called soon disappears, but not until after it has marked the boundary line between two distinct portions or lobes of lymphoid tissue, the upper one becoming the upper pole of the tonsil in which we have the supra-tonsillar fossa and the other one the lower pole of the tonsil or the gland proper.

The lymphoid tissue entering into the formation of the upper pole of the tonsil and its supra-tonsillar fossa is the first to appear in the early development of the gland, and it always remains somewhat rudimentary in character. This undeveloped or rudimentary condition of the upper pole of the tonsil and the concave or bowl-like shape of its fossa, combined with the fact that nearly, if not quite all, the crypts from the lower pole of the tonsil proper open into it, render this region extremely liable to disease.

In considering the relation of the tonsil to the pharyngeal structures the so-called capsule should not be overlooked. Authorities differ widely with reference to the anatomy of the capsule of the tonsil, and this seems to be due to the fact that the tonsil changes so much with the various stages of its development and also with the various pathological conditions which arise in this region.

Dr. D. R. Paterson, surgeon to the throat department of the King Edward Seventh Hospital, Cardiff, who has made many sections of the tonsil in its various stages of development, says that anatomically, in the first instance, the capsule is no essential part of the tonsil; it is nothing more nor less than a portion of the intra-pharyngeal aponeurosis or fascia attached above to the base of the skull and extending down between the superior constrictor and palatal muscles as far as the cellular portion of the esophagus, and as its development goes on, the tonsil becomes more and more closely adherent to this fascia until during the process of "physiological sclerosis" in more advanced life it actually becomes an integral part of it, building upon it and increasing its thickness by the addition of its own connective tissue. "Like the larva," says Dr. Paterson, "which spins its own cocoon, the tonsil may be said to weave, or, at least, to add to its own capsule." and thus a stronger wall of defense is formed against injury or systemic infection through the tonsillar region during advanced life.

Although this theory may not be in accordance with the more or less generally accepted views with reference to the anatomy of the capsule of the tonsil, yet those of us who have had a large clinical experience know that in many instances an extra-capsular enucleation of the tonsil necessarily involves a kind of window resection of the intra-pharyngeal aponeurotic sheath, and in some instances also, where fibers of the superior constrictor muscles are lacking, a resection even of a portion of the extra-pharyngeal aponeurosis to which the gland has become firmly united. The tonsil that is easily removed from its bed and turned out of its capsule somewhat as a finger is removed from its stall in a glove is either a very young tonsil or not a pathological, but a normal one which in all probability should not be removed at all.

It appears, therefore, that we are dealing with a complex and a somewhat highly specialized organ, composed largely of lymphoid tissue, the systemic function of which is similar to that of the less highly organized lymphoid tissue found in other parts of the body, and this function is operative chiefly during childhood or up to the fifteenth year, after which time its function becomes more mechanical in character and is chiefly operative in phonation, articulation and deglutition.

Let us now consider just what happens during and after the operation for extra-capsular enucleation of the tonsil. In the first place, all that portion of the pharyngeal mucous membrane which covers the tonsil and extends into its deeper recesses and crypts is removed, and the tonsil itself together with that portion of the intra-pharyngeal aponeurotic sheath which may be attached to it is dissected out, including in many instances also fibers from the palato-pharyngeus, the palato-glossus and the superior constrictor muscles, and when, as occasionally happens, the superior constrictor muscle is thin or absent in the region of the tonsil, our resection may include also a portion of the peri-pharyngeal aponeurosis. This operation leaves a large, deep cavity with a surface of granulation extending from two to four square inches. Opening into this cavity we have the cut or torn edges of the pharyngeal mucous membrane, and in many instances the raw surfaces of the three important muscles to which I have referred—namely the palato-pharyngeus, the palato-glossus and the superior constrictor muscles, together with the cut or torn edges of the resected portion of the intra-pharyngeal aponeurosis, which it will be recalled is often muscular as well as fibrous in its construction. In those cases in which fibers of the superior constrictor muscles are wanting, we may have also a resected portion of the peri-pharyngeal aponeurotic sheath.

The final results of this somewhat extensive dissection are what we should naturally expect, namely a contraction of the cavity and a more or less firm cicatricial union between these cut or lacerated surfaces, binding them all together at central points of cicatrization, and thus two or three months after the operation the old landmarks that characterized the distinctive features of the walls of the pharynx are practically gone forever. Instead of the beautiful clean-cut, sharp edges of the palatal pillars during phonation and articulation, and the well-marked pharyngeal recesses both between and on either side of the pillars, we have plain oval pharyngeal walls with occasional bands of tense fibrous tissue coming into greater prominence when the mouth is open and the tongue depressed. Moreover, after the normal mucous membrane of the parts is destroyed its place is occupied by smooth, cicatricial tissue, having a glistening surface and no mucous secretion whatsoever.

The cicatricial bands, of which I have spoken, frequently give rise to painful tugging-sensations in the pharynx, and the absence of normal lubricating glands in this region often causes a dryness which in some instances becomes exceedingly annoying.

Now what effect must all this have upon phonation and articulation? In the first place it is not unusual to have the patient tell us in a proud way that he or she can sing one or two notes higher than before the operation, but surely this is not a "consummation devoutly to be wished," for the higher pitch is always reached at a sacrifice of other and more important or desirable qualities of the voice. It is accuracy of pitch and an indefinable something which we call timber or quality that is desirable and that should be sought after, but accuracy of pitch and that marvelous something that distinguishes the great voice from the ordinary voice cannot possibly exist or be acquired under the physical and neuro-muscular conditions which necessarily exist after a complete extra-capsular tonsillectomy. However carefully and skillfully the operation may be done, we must of necessity have a more or less crippled palate and tongue, and resultant inaccuracies in the action not only of the extrinsic but also of the intrinsic muscles in the larynx. The natural free movements of these three organs—the palate, the tongue and the larynx—during phonation and articulation are wanting because the smooth, well lubricated musculo-aponeurotic sheath with which they were in close relationship has been in part removed and the tonsil itself, which formerly served to keep the muscles in their normal relations and guide them in the direction of their activities, has been sacrificed and there have been substituted the resultant scar-tissue, fibrous adhesions and insufficient lubrication.

These results follow, be it understood, however well and adroitly the operation may be done, but when we consider how often it is badly or mal-adroitly performed and how exceedingly more unfortunate are the results attendant upon such procedures, we have an additional reason for teaching conservatism in this operation.

At the last meeting of the American Medical Association, Dr. Sheedy, in discussing the tonsil question, said that in a careful study of the secondary results following 100 tonsillectomies in New York City, more than 80 per cent had deformed palates, and in only about 20 per cent did the palatal pillars even approximate the normal. This report is in entire accord with my own observations in the study of a far greater number of cases in Philadelphia. It is the exception rather than the rule to find the palatal pillars approaching the normal after the radical operation, and I have never seen anything like perfection in their action during phonation after an extra-capsular tonsillectomy in an adult patient.

But you will ask why I seek perfection in the action of these muscles, especially since perfection is found nowhere else in nature. My reply to this is that the human pharynx or throat, by a beautiful provision of nature, furnishes us with the most wonderful of all musical instruments. No two of them are exactly alike and yet structurally they differ but little the one from the other. It is the slight, the almost imperceptible structural differences, however, that help to distinguish the great voice from the ordinary voice.

The mechanical instrument which most nearly approximates the vocal instrument in the human quality of its tones is the violin, and the two instruments are in some respects similar. For example, both may be very good and both may be very bad, and it is not always easy to tell why this is so. One violin, for instance, looks very much like another. You and I might not be able to tell them apart, and yet to purchase the one would cost you thousands of dollars, while you may have the other for $1.50. The difference, we are told, is in the materials of which they are made and in the way they are put together. So I think we may look for the differences in vocal instruments. Who has ever heard of a truly great singer having ever undergone an extra-capsular tonsillectomy? The great voices are the product of the more nearly perfect instruments and these in turn are the products of nature and not of art.

In considering the function of the tonsil much time has been given to the study of its systemic effect upon the individual and much more time and labor will have to be given before we arrive at conclusions that may serve as a basis for intelligent work in this line. We do not know the systemic functions of the tonsil and we may never know them, because of the difficulties which arise in making the necessary investigations. Judging from the conflicting statements of those who have made a special study of the subject, we do not even know the minute anatomy of the faucial tonsils and of their setting in the pharynx, to say nothing of their physiology and general relation to the human economy. All this is a strong argument in favor of surgical conservatism.

The mechanical functions of the tonsil in phonation, articulation and deglutition, have received but little attention, and I am convinced that a greater knowledge in this direction would lead to greater conservatism in tonsillar surgery.

The normal tonsil, and by this I mean the healthy tonsil and the one of normal or approximately normal dimensions, is not only beneficial to voice-production, but it is absolutely essential to the attainment of the highest artistic results in singing and speaking.

The functions of the tonsil in phonation and articulation are three-fold: first, it serves to maintain the normal anatomical relations of the soft palate, the tongue and the larynx not only to one another, but to the comparatively fixed spinal column; second, it serves to keep the pillars of the palate apart and to direct them in their phonatory and articulatory activities; and third, it has in itself important acoustic properties in artistic vocalization.

The mechanical functions of the tonsil are somewhat analogous to those of the nasal and laryngeal cartilages. Just as these cartilages are essential to the structural integrity of the nose and larynx, so the tonsil serves to maintain the various parts of the walls of the pharynx in their normal structural relations, and its absence or its removal always results in a partial collapse of these structures. Moreover, like the cartilages of the larynx the tonsil has attachments to the various surrounding muscles and thus it influences and directs their activities.

As to the resonating function of the tonsil, we know that the tones of the violin are materially changed by the insertion of any foreign substance of varying density into the body of the instrument, and reasoning from analogy, therefore, tonsillar tissue being of a different density from the surrounding structures in the fauces must have some effect upon the resonance of the oral cavity. Just as the normal tonsil is helpful in voice-production, however, the abnormal tonsil may be altogether prejudicial, and it may be prejudicial to such an extent as to make some kind of tonsillar surgery absolutely imperative.

There are three ways in which the abnormal tonsil may be injurious to the voice: first, it may obstruct the outgoing column of vibrating breath; second, it may interfere mechanically with the action of the muscles; and third, it may interfere with the neuromuscular activities of the pharynx by the local infection which it generates.

The three kinds of abnormal tonsils, therefore, which interfere with voice production are: first, the very large discreet tonsil that projects considerably beyond the edges of the palatal pillars and is more or less pedunculated; second, the large so-called submerged tonsil or the one held within the grasp of the palatal pillars and plica; and third, the smaller and chronically diseased tonsil which is undergoing degeneration. The first two types of hypertrophied tonsil may give no symptoms whatsoever except those of obstruction and pressure, while the third type is one presenting foci of infection and causing occasional attacks of peri-tonsillitis. These three types of tonsil belong chiefly to adult life, and they usually appear between the ages of 15 and 35. Moreover, this is the period also of artistic vocal development and the period during which the condition of the tonsils may make or mar the voice.

Before 15 years of age, the tonsils are exercising their bactericidal and protective functions and their very hyperemia and hyperplasia may be an evidence of their activities in the performance of these functions, but after 15 years of age, they are physiologically less active and they gradually undergo important physical changes. Their mechanical functions now come into greater prominence, and tonsillar surgery should aim not to destroy but to maintain their mechanical efficiency.

The surgery of the faucial tonsil may be considered under two headings: first, that of childhood, and second, that of adult life. The tonsillar surgery of childhood should be as conservative as possible, because then if ever the tonsils are exercising their systemic functional activities, and the tonsillar surgery of adult life should be conservative because of the mechanical functions of the tonsil in artistic vocalization.

The two conditions of the tonsil which require surgical interference are true hypertrophy or chronic hyperplasia and actual primary disease of the tonsil. A tonsil may be very large, while in other respects it is entirely healthy. Such a tonsil calls for conservative, rather than radical, surgical measures.

Actual disease of the tonsil is exceedingly difficult of diagnosis, and some one has well said that one must enucleate it before he can be sure that it is diseased. The so-called diseased tonsil is oftentimes not a diseased tonsil at all, but its condition is merely symptomatic of some general systemic affection. Moreover, a tonsil may be diseased only in part. A single crypt may become a focus of infection, while the other crypts and the remaining portion of the tonsil may be healthy or only secondarily disturbed. The total enucleation of the tonsil under these conditions would seem to be wholly uncalled for. One might almost as well think of amputating a hand because of an infection limited to a single finger.

Recurrent tonsillitis or even peri-tonsillitis may often be cured without resorting to radical surgery. Tonsillitis may be, and often is merely an expression of a systemic condition, and thus may be comparable to the rash of measles or typhoid fever, and peri-tonsillitis may result not from tonsillar infection at all but from extra-tonsillar infection.

The most puzzling cases of tonsillar disease are those in which the tonsillar region is suspected of being the portal for the entrance of infectious organisms into the general system. It is supposed that there comes a time when, on account of its diseased condition, the tonsil ceases to be a protective organ and actually becomes an infective organ, and thus a menace to the individual The fact, however, that the tonsillar defense appears to be broken down, would seem to be an argument for its repair, rather than for its total annihilation. The removal of the tonsil, therefore, merely upon suspicion and without a thorough investigation of the conditions would scarcely seem to be a justifiable or scientific procedure.

Before doing a complete tonsillectomy, it would seem only reasonable to demand a thorough differential diagnosis. It is easier to enucleate than it is to investigate, and especially is this true with our improved technic, in the perfection of which we have spent so much valuable time. I predict that future years will find us trying not how best to enucleate but how to avoid enucleation.

In the great majority of instances there is really only one good reason for doing an extra-capsular tonsillectomy, and that is the difficulty of doing an intra-capsular tonsillectomy. I grant you that a tonsil may be more thoroughly removed by the former operation, but I deny the necessity for its thorough removal. Good drainage, as a rule, is better than tonsillectomy, although it may not be so easily accomplished.

And, finally, because of the mechanical functions of the faucial tonsil in phonation and articulation, if for no other reason I would protest not against tonsillar surgery, but against unnecessary tonsillar surgery and especially against extra-capsular tonsillectomy as a routine measure, and in its stead I would suggest the conservative measures to which I have referred, and in extreme cases what, in lieu of a better term, I would call intra-capsular tonsillectomy or a careful dissection of the gland from within its pocket in the intra-pharyngeal aponeurosis. This is a more difficult and more tedious procedure, but I have found it not to be an impossible one, and the fact that some tonsillar tissue may remain after the operation, is no great objection to it because when the operation is properly performed, good drainage, the *sine qua non* of every operation, is thoroughly established.

The extra-capsular tonsillectomized pharynx is always necessarily a damaged pharynx, and the radical operation should only be done when the damage to the pharynx and to the individual threatens to become greater by leaving it undone.

All the really great singers have tonsils, and they probably would not, and could not, be as great without them. Obviously the singers to whom I refer are not those who have pathological tonsils, for they also would damage the pharynx and preclude the possibility of their becoming great singers.

The whole question as to the final effects of tonsillar surgery upon phonation and articulation lacks clearness in our minds because we are not good judges or critics of the voice. We cannot always distinguish between artistic and mediocre singing tones, and we are, to a great extent, satisfied with merely intelligible articulation. The patient's own testimony is of little value because he is not a good judge of his own voice unless, perchance, he happens to be a trained singer who has learned to make fine distinctions as to tone and quality.

The voice specialist and the throat specialist are at odds in this matter because they do not understand each other's point of view. The singer is afraid of the surgeon and he will continue to be afraid of him and in many instances to dispense with his services until the surgeon begins to have regard for the singer's voice as well as for his health.

1627 Walnut Street.

SOME SURGICAL CONDITIONS OF THE JAW.*

DR. HENRY S. DUNNING, New York City.

There are several operative conditions of the jaws that have been somewhat overlooked by the general surgeon, and also by the dental surgeon. Among these are fractures of the jaw, epuli (tumors of the gums) and cysts. It is, of course, very hard for me to say very much about these three conditions in a twenty-minute talk, but I thought I would touch upon these diseases to-night.

Fractures of the inferior maxilla are quite a common occurrence in a great city like ours. They generally occur in the young male adult, and are often caused by a blow of the fist. About ninety-eight per cent of these fractures are compounded, where there are teeth in the mouth. They are generally simple fractures when the jaws are edentulous, or where there are no teeth present.

The most important part of the treatment of a fractured jaw is, as in other fractures, reduction and fixation. It is more difficult to get perfect fixation of a fracture of the lower jaw than in other bones, as this bone is being played upon all the time by many muscles, and is hardly ever at rest. A strong and carefully constructed splint is required to hold the fractured parts co-apted, and sometimes it is necessary to make quite an elaborate mechanical appliance to get good results.

True fractures of the upper jaw are very rare. During the last eight years, at the New York College of Dentistry, we have treated over eleven hundred fractures of the lower jaw, and have had only six fractures of the upper jaw. The alveolar process of the upper jaw is often fractured, but these fractures seldom extend to the body of the bone, and do not very often involve the antra. These fractures are best treated by means of wire cribs and rubber splints, cemented to the teeth.

Small tumors of the gum, or epuli, are caused often by a sharp tooth or an ill-fitting crown, and the majority of these growths are fibromas. They seem to occur more often in women than in men, and most usually in Jewish women of middle age, who have had several children. They are quite vascular, but are usually slow-growing. At the Dental College where we see a great many of these cases, we find that there is a distinct relation between these tumors and pregnancy. Our records show that these growths often start in the early months of pregnancy, and grow quite rapidly until child-birth. They are more vascular during this period, and after pregnancy they seem to become less so. Their growth seems to be retarded after this period.

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*Read at the meeting of the New York Academy of Medicine, Section on Laryngology and Rhinology, March 25, 1914.

Several of our patients have given histories of having had an epulis start at the beginning of pregnancy and having had the growth removed, but having recurrences of it at subsequent pregnancies.

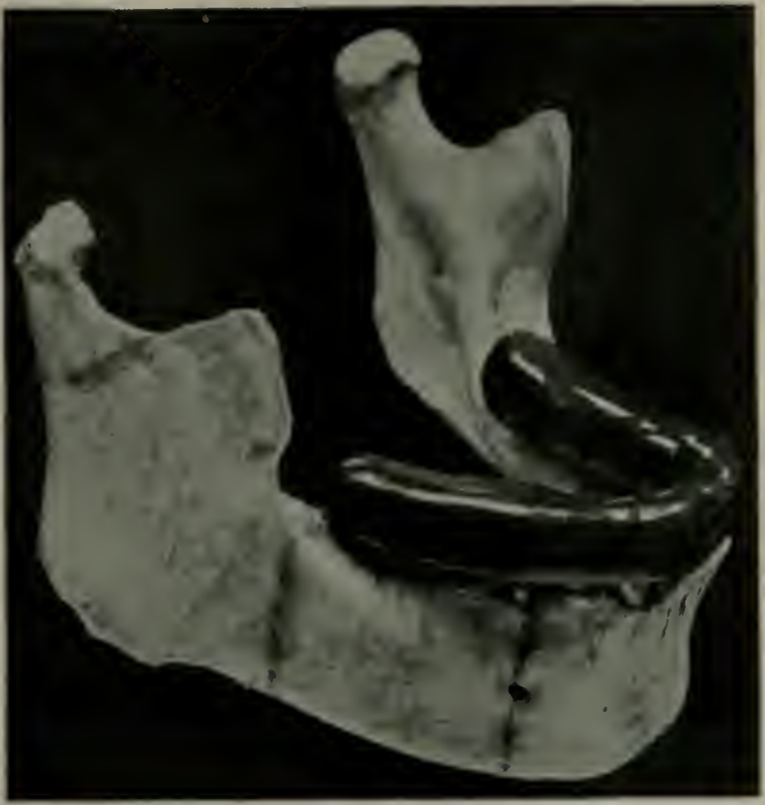

Figure 1.

These epuli usually grow from the periosteum lining of the alveolus, or from the socket of the tooth, sometimes from the peridental membrane of the tooth itself. Most often they grow around a tooth or a tooth-socket that is infected. A thorough removal of the periosteum and the alveolar process and the teeth involved in the region generally effects a permanent cure of these cases.

Dentigerous cysts, cysts that contain teeth, are more common than one would suppose, but their pathology has not been very thoroughly investigated. They are most often lined by a fairly thick, tough membrane, and contain a thin fluid, and often pus.

These cysts are generally caused by some irritation—usually a tooth that, for some reason has become impacted and does not erupt, and becomes encysted. They take many years to form, as a rule, and often cause great destruction of the bone. The treatment of these cysts is to open them, and to remove the sac and contents, and to thoroughly curette the bony cavity. The cys-cavity, as a rule, heals in very nicely with granulations. The cavities should be irrigated and packed with gauze daily to prevent them from becoming infected by having food, etc., pack in the wound.

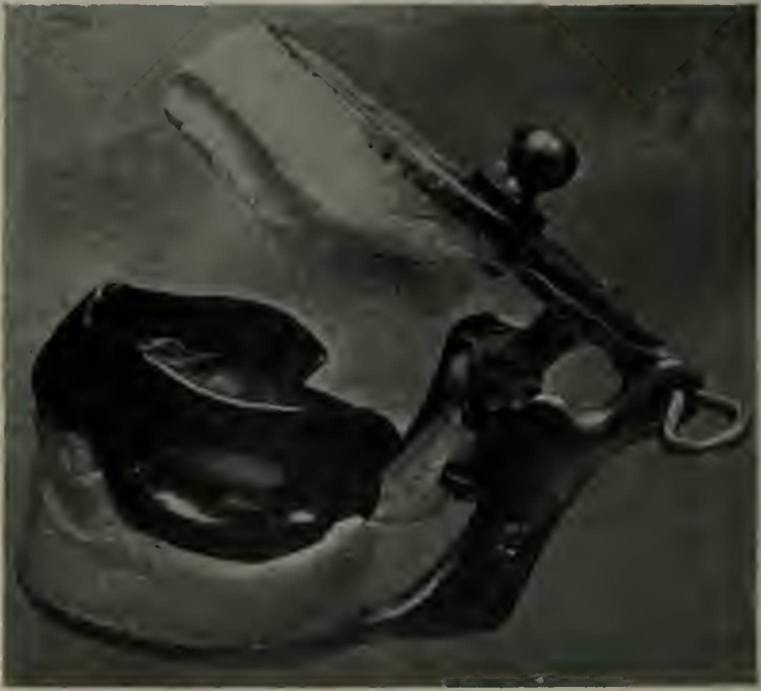

Figure 2.

Case 1 shows a cap splint or single arch splint which is cemented to the teeth. It is made of rubber or metal and is used in every case where there are one or more sound teeth on either side of the line of fracture to which the splint can be cemented. It is left on for about four weeks, and during this time the patient has full use of the lower jaw, and can masticate easily. This splint cannot be used in any fractures posterior to the third molar. It is not of much use in fracture of children's jaws, as their teeth are not strong enough to cement the splint. No bandage is used when the splint is applied.

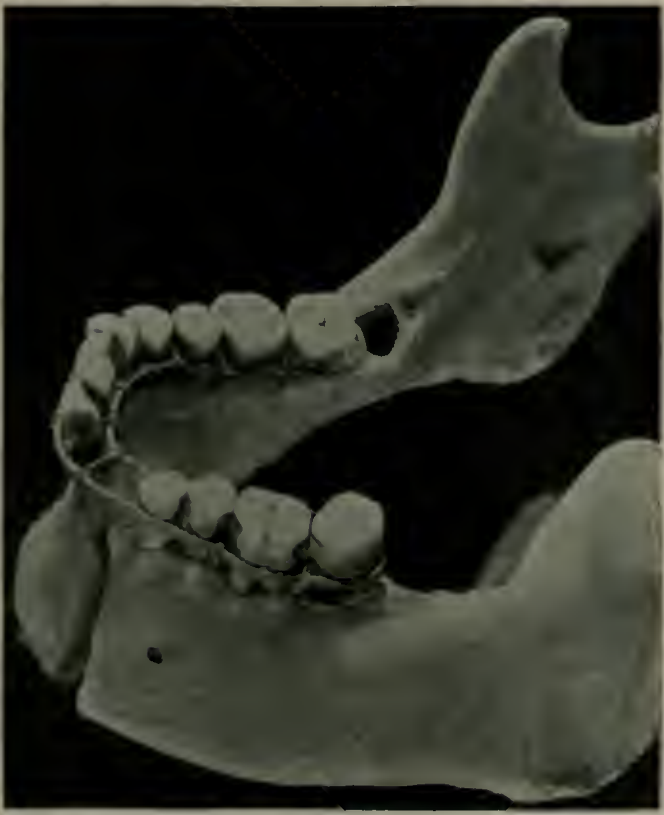

Figure 3

Case 2 shows an old fashioned interdental splint, which is used very little at present. It is a dirty, clumsy affair, and need only be used in edentulous cases, and in fractures occurring in children, where the teeth are not strong enough to hold a cemented splint, and where the angle method of wiring cannot be employed.

Case 3 shows a wire crib splint which is sometimes used. It is not a good form of splint, is hard to keep clean, injures the gingival margin of the gums considerably, and is, for this reason, often the forerunner of pyorrhea alveolaris.

Case 4 shows the Angle system of wiring upper and lower jaws together, and is a very good method where the fracture is situated posterior to the third molar, where the fracture cannot be held by a splint in the mouth. The wire is made of tin and brass, and is much tougher than silver wire. The upper jaw is used as a splint against which the lower jaw is held.

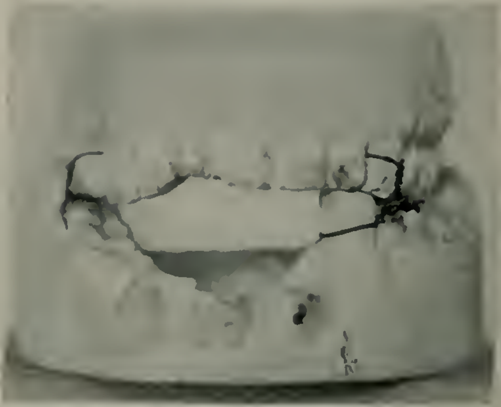

Figure 4.

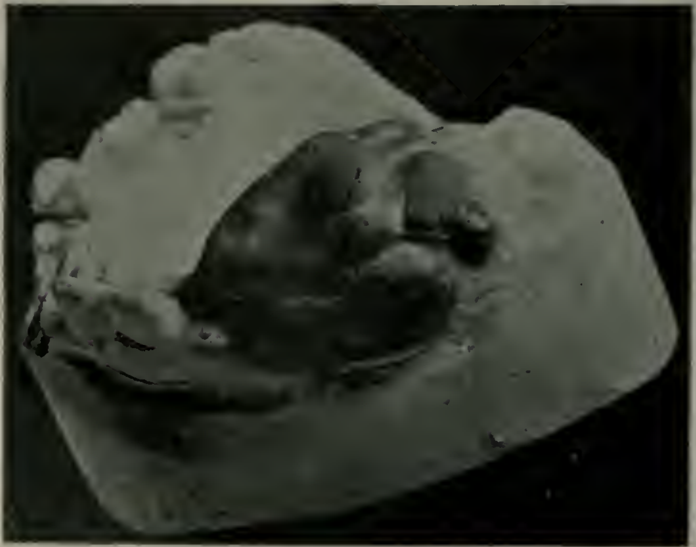

Figure 5.

Case 5 shows a typical benign epulis which occurred in a Jewish woman, 47 years old. She had a badly neglected mouth, and a general pyorrhea condition was present. The growth was about one year old when I saw the patient. It was thoroughly excised, and several broken-down roots removed under the growth. It has not recurred, to my knowledge.

Case 6 is the same type of tumor, and shows what great force is exerted by these growths at times, and how easily the teeth are separated, loosened and often exfoliated. This growth occurred in a Jewish woman, 38 years old, and was thoroughly excised, and the neighboring teeth removed with their alveolar sockets. No recurrence after two years.

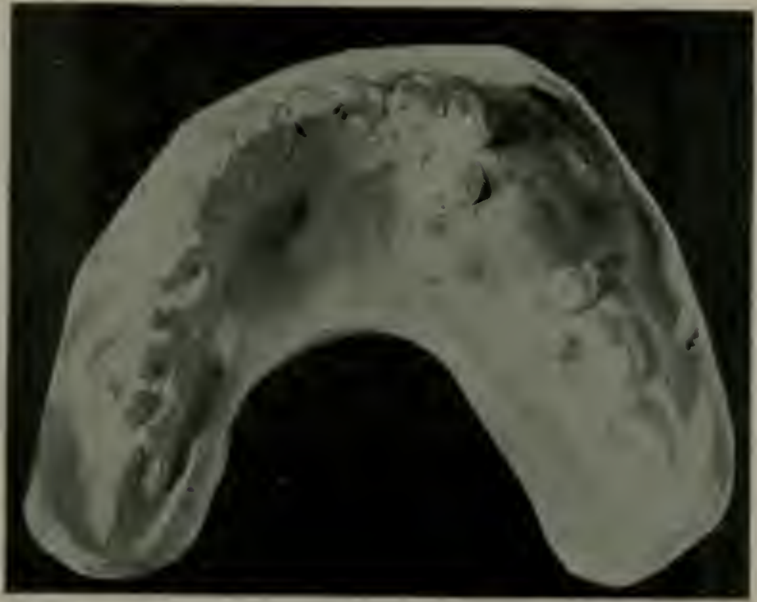

Figure 6.

Case 7 shows another epulis which was caused by two ill-fitting gold crowns on the second bicuspid and first molar. The gold crowns pressed on the gum tissue, and at first caused congestion, and, later, a hypertrophy which developed into an actual new growth. The cuspid and bicuspids were removed, and the alveolar process partly removed and curetted, and there has been no recurrence after three years.

Case 8 shows an epulis which is attached to the gum and periosteum by three pedicles. It grew around a molar tooth that had a large cavity in it. The sharp edge of the cavity caused the irritation of the gum. The tooth became loosened after a few months, and was thrown off. The growth was of about two years' duration when this picture was taken. The patient was a woman of 35 years. Thorough excision resulted in a permanent cure.

Case 9 shows a true bony multi-ocular cyst of the lower jaw, situated under an infected, broken-down first molar. This cyst occurred in a young man of 17, and probably had been developing for several years before the patient noticed it. He had a large swelling of the jaw, and there seemed to be a thinning out and jaw. I do not believe that the cyst caused the death of the first molar, as that had a large cavity in it which caused an exposure of the nerve of this tooth. The cyst, however, became infected from the death of the molar, and, when it was opened, the cyst sac contained thin pus. The two molars were removed and also the lining membrane of the cyst cavity, and, after a thorough curettage, the

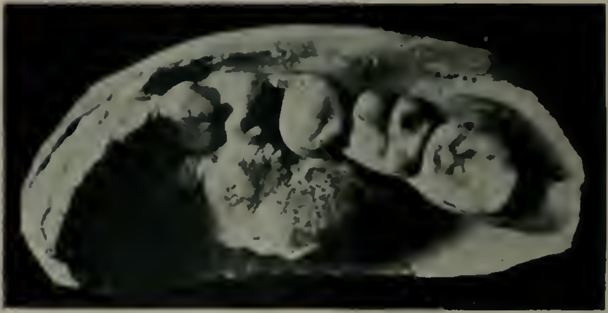

Figure 7.

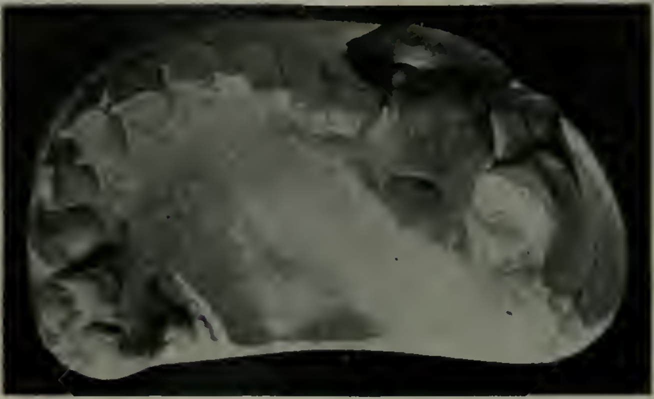

Figure 8.

wound was irrigated and packed with gauze incorporated with bulging of the internal and external alveolar plates of the lower white vaseline and bismuth. This packing was changed, and the wound irrigated daily for some weeks, and eventually the wound filled in with healthy granulating tissue. I believe that the third molar will erupt in about its normal position as its vitality was not disturbed.

Figure 9

Case 10 shows a true dentigerous cyst of the ramus of the lower jaw. The cyst involves the entire ramus and part of the body of the jaw. It was lined by a thick membrane and in this membrane was found a developing third molar. The patient was a man about 35 years old. He had noticed a swelling on the side of his jaw for about five years, and had a slight discharge of pus from a sinus in his mouth. He had never suffered any pain and there had been no disturbance in the motion of his jaw. The sac was easily dissected out, the tooth removed and the cavity curetted, irrigated and packed; and in about six months it had almost filled in with healthy tissue.

Case *11* is a print from a radiograph of a cyst caused by a chronic abscess of a devitalized cuspid tooth, upper jaw. A metalic filling was placed near the nerve chamber, causing the death of the tooth, and shortly after this a sinus formed in the alveolar process, and pus discharged. This persisted for several years, and when the x-ray was taken, there was a large area of necrotic bone, and a cavity found, which contained the apices of the lateral, cuspid and first bicuspid teeth. All these three teeth had become devitalized and had to be carefully treated, after which the three roots were amputated at their healthy bony attachment, and the cavity above thoroughly curetted, irrigated and packed, as the above bony cavities were treated. The wound healed completely in about two months.

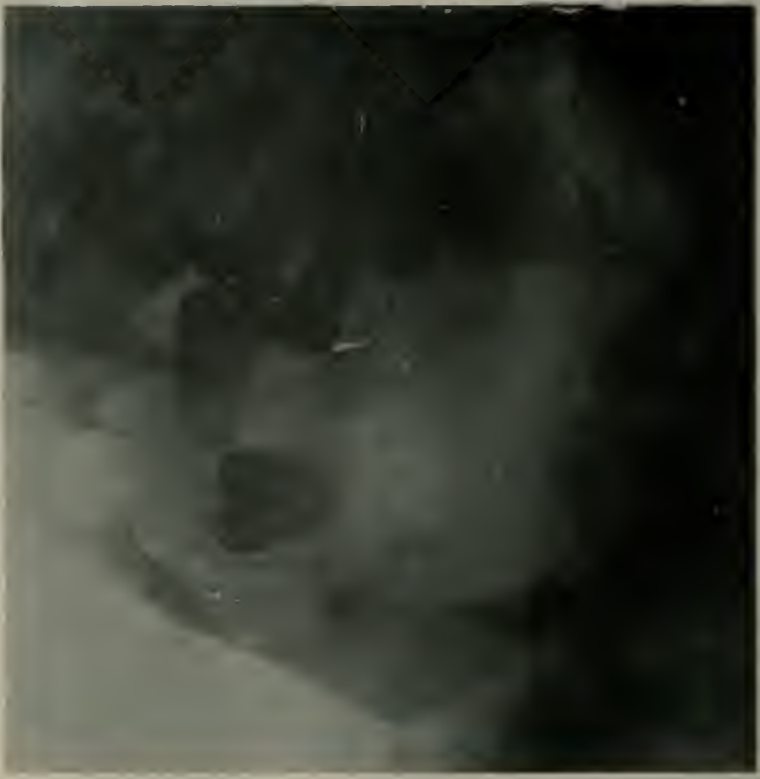

Figure 10.

Case 12 is a copy of a radiograph taken of a woman, 35 years old, who had an adamantinoma of the lower jaw in the region of the angle and molars. The woman gave a history of having had a

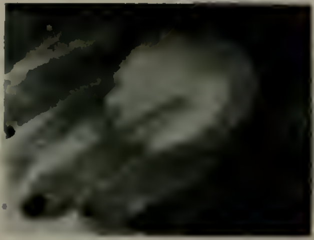

Figure 11

first and second molar extracted about five years before this picture was taken. Her trouble commenced shortly after she had a lower plate made, which was directly after the teeth were extracted.

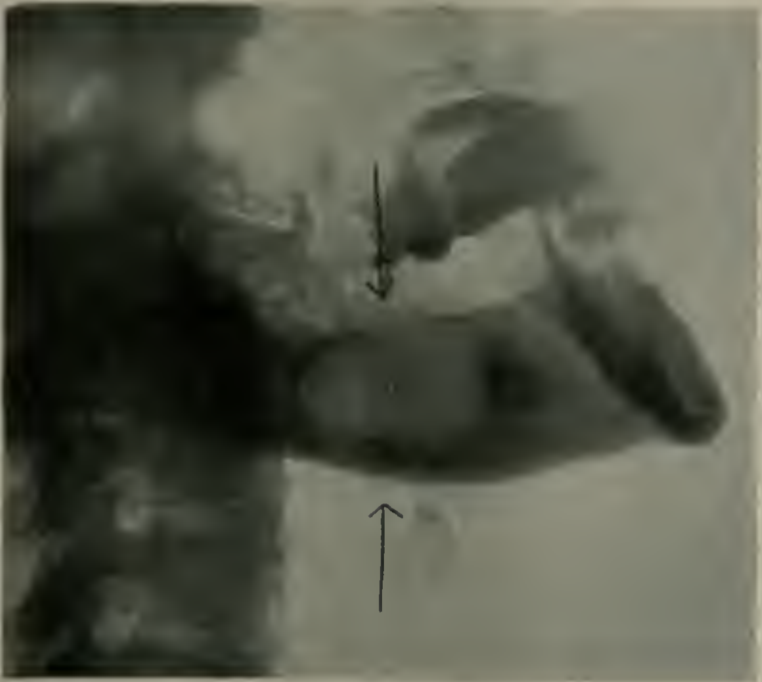

Figure 12

ed. She noticed that, in a few months, the plate did not seem to fit, and hurt her by pressing too hard upon the tissues in the region of the molars. She had never had a third molar, and it was thought that perhaps she was getting one on this side. The mucous membrane in the region of the molars was quite normal, but the tissues and the jaw itself were thickened considerably. This condition was operated upon, and the growth found to be quite tough, somewhat resembling a fibroma in consistency. It was thoroughly removed, the cavity packed and irrigated; and the growth has not recurred.

Pathological report was adamantinoma.

Case 13 shows radiograph taken of a dentigerous cyst of the upper jaw region of the canine fossa. This cyst occurred in a woman, 30 years old, who had never had a permanent canine tooth. There was a slight swelling over the bicuspid and a discharge of pus from a sinus at the neck of the first bicuspid. A probe could be passed for two inches up into a large bony cavity which included the antrum. X-ray showed a large cavity containing pus and an unerupted canine tooth. This cyst was, of course, an infected cyst, but was draining freely and did not cause the patient any discomfort. The bicuspids were "dead" teeth and had to be removed when the cyst was opened and the cavity curetted. There was quite a thick, tough sac found, and the unerupted tooth was inside the sac. The cavity was thoroughly curetted, irrigated and packed daily with bismuth paste and gauze, and the wound filled up considerably in four months when I lost track of the patient. There was no discharge of pus through the nose on this side, and it was found that the lining membrane of the cyst covered over the middle meatus, and shut off the communication of the antrum with the nose.

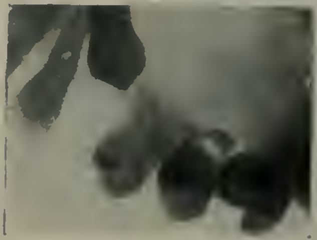

Figure 13.

Madison Avenue and Thirty-eighth Street.

(A) ANOTHER UNUSUAL LARYNGEAL TUMOR. SPECIMEN. (B) A CURIOUS ESOPHAGEAL EXPERIENCE. SKIAGRAPH AND FOREIGN BODY.*

Dr. Hubert Arrowsmith, New York City.

(A) I present this tumor of the larynx as a companion to that shown here by T. R. Chamberlain at the October meeting. The patient was a man 45 years of age, an electric welder by occupation, who came to my clinic in December, 1910. About a year before, he had first noticed a hoarseness, which subsequently increased, and he had had "choking attacks" and increasing dyspnea and dysphagia for six months previous to admission.

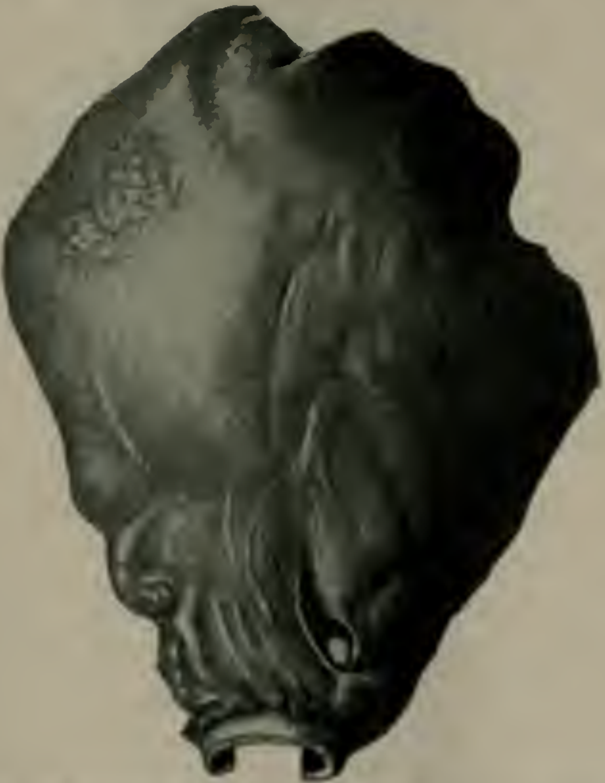

Figure 1. Epithelioma of the larynx. Natural size. Anterior view. Case of Elliott. Tracheotomy tube worn eighteen months. Note tracheotomy wound.

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*Read at the meeting of the New York Academy of Medicine, Section on Laryngology and Rhinology, December, 1913

An immediate tracheotomy was done, and he was kept in the hospital for some time subsequently, for observation. As far as I could determine, the tumor seemed as large when I first examined him as it is now. He lived for eighteen months after the tracheotomy, working at his trade for almost a year of that time, and finally died from inanition from the closure of the esophagus by outside pressure, due to the enormous surrounding glandular involvement, though the esophagus itself was not affected.

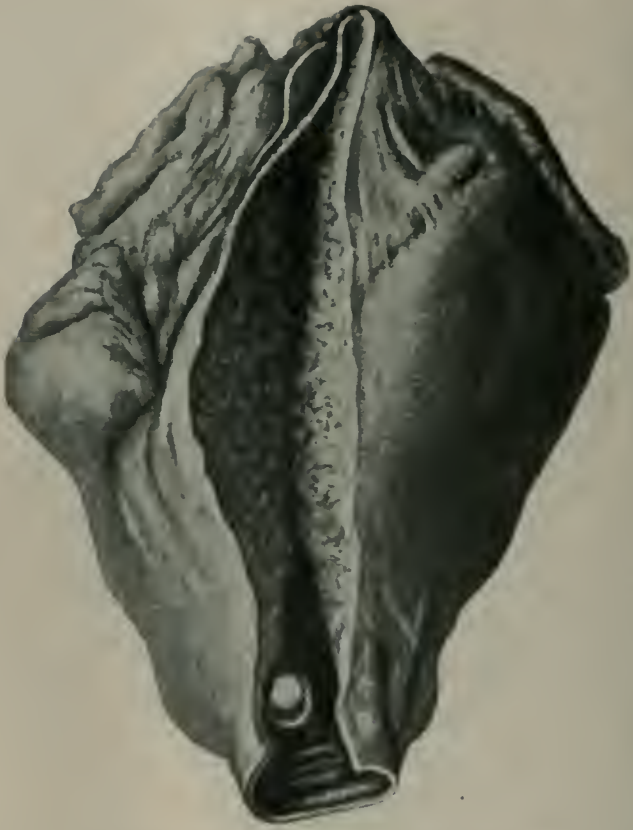

Figure 2. Epithelioma of the larynx. Posterior view. Natural size. Note tracheotomy wound.

The tumor is an epithelioma completely obliterating the lumen of the larynx, with an enormous though curiously limited extrinsic involvement of the cartilages, so that the appearance of the larynx, as removed, suggests a large cyst. A point of interest is the appearance of the trachea which is uninvolved, and particularly the tracheotomy wound which looks smooth enough to be a natural anatomical opening.

(B) The patient, a young woman, 18 years of age, employed as dressmaker, came to my clinic October 3, saying that two hours previously she had swallowed an open safety pin. The skiagraph showed the pin plainly—*point up*. That evening I attempted to remove it. I found it immediately, but had the bad judgment to demonstrate it, through the esophagoscope, to a dozen or more spectators. The patient came out from the influence of the anesthetic, and vomited profusely. I was forced to withdraw the esophagus, and on reintroducing it, could not find the pin. I assumed that it had gone into the stomach, but a radiograph of the abdomen, made next day, failed to reveal it; another of the esophagus, showed it reversed in position and somewhat lower down. Esophagoscopy immediately disclosed the coiled end, and it was extracted without the least difficulty.

The only solution that I can suggest for the reversal of the pin is the violent effort of vomiting.

178 Clinton Street.

Malignant Tumors of the Pharynx in Children. LUCIEN JEANNERET. *Revue hebd. de Laryngol,* April 18, 1914.

Primary malignant tumors of the pharynx in children are extremely rare. The tonsil is the most frequent site; then the palate and occasionally the walls of the pharynx. Sarcoma of incomplete maturity is the most frequent type. Alveolar sarcoma and rhabdomyosarcoma have been observed. Carcinoma is exceptional.

The case of congenital sarcoma reported demonstrated that a malignant tumor may originate in the pharynx independent of all irritations.

All malignant tumors of the pharynx in children have a very rapid evolution and the prognosis is extremely bad. As soon as they give rise to symptoms, surgical intervention is generally useless on account of the progress which the growth has made.

SCHEPPEGRELL.

BRONCHO-ESOPHAGOSCOPY.*

DR. E. W. CARPENTER, Greensville, S. C.

In the summer of 1912 I reported five cases of foreign bodies removed from the bronchi with one death due to the parents' delay in obtaining aid for an infant whose trachea presented sufficient inflammatory narrowing to prevent the introduction of the instrument by either a high or low operation. At the same time I presented one successful case of esophagoscopy.

Since then my share of similar work has amounted to eight cases. Before reporting them, let me say a few words: The majority of foreign bodies in the lungs cannot be expelled by the efforts of the patients and most often will cause death sooner or later; therefore, never procrastinate and wait for them to be coughed up. Do not accept all that children say about the nature of a foreign body, because fear or other reasons often prompt them to obscure the truth of the situation. Cough of a paroxysmal and spasmodic nature is always present in recent cases where foreign bodies have been introduced into the lungs. A chronic cough, which cannot be accounted for, should be submitted to bronchoscopy. Be very insistent in obtaining the minutest detail connected with the initial symptoms, and after exhausting all your resourcefulness, submit your patient to the x-ray. A good negative will sometimes show results different from those suggested by the case history.

Case 1: Infant, 14 months old, while playing at an open bureau-drawer, had severe choking spell. It was brought to my office within an hour, transferred to hospital and within three hours after the accident, investigation was begun. Bronchoscope introduced without difficulty and a hard, smooth, round, blue substance was exposed in the right bronchus, firmly wedged and immobile. Diagnosis of a small marble was made, and after working for an hour, my colleague, Dr. J. W. Jervey, who was in the building, was invited to see the case. We worked alternately for three hours, when he very deftly and skillfully succeeded in withdrawing a large bead. Recovery after right lobor pneumonia.

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*Presented before the Southern Medical Society, Lexington, Ky., November, 1913.

Case 2: Infant, 2 years old, while playing with a mouth full of grains of corn, laughed and was seized with violent choking. I saw the case after two weeks, pneumonia present, infant desperately ill. Bronchoscope passed through the sub-glottic area with difficulty because of the presence of a subglottic infiltration, when respiration was immediately suspended, necessitating the withdrawal of the tube, after which it was impossible to reintroduce it. It could be passed between the cords and below them about one-third of an inch, but the subglottic mucosa presented a firm ring which prevented further progress. The trachea was opened, the instrument introduced, and a grain of corn discovered completely filling the right bronchus like a cork. It was extracted at the first attempt when a flood of pus deluged the lungs.

Because of the subglottic hyperplasia, it occurred to me to intubate the larynx and close the tracheal opening, believing this would give good ventilation, reduce the chances of sepsis, and overcome the subglottic hyperplasia early instead of running the risk of having to treat a tracheal stenosis later. While introducing an O'Dwyer tube, successful at first attempt but tight-fitting, respiration suddenly stopped and all attempts to re-establish it failed.

Case 3: Infant, 10 months old, brought to my office in stupid, relaxed, cyanotic state with very shallow breathing. History of choking spell an hour before while eating some corn-bread. As there was no time to transfer the child to the hospital, I at once introduced the bronchoscope in the prone position. Trachea and main bronchus were filled with thick mucus and numerous particles of corn-bread. After careful mopping, they were cleaned out and respiration became regular and deep; on removal of tube the baby sat up and cried and seemed perfectly comfortable.

Case 4: Child, 5½ years old. This was a second-hand case. Eight days after inhaling a coffee-bean another physician exposed the bean, but for some reason failed to remove it and abandoned the attempt. The child was brought to me two days after this attempt with the statement that the first operation was abandoned because it was necessary to do a low operation and the mother at that time withheld her consent to open the trachea, and that the parents had now consented to any measure deemed advisable and the physician who had conducted the first investigation was out of the city. Pulse, 130; respiration, 32; temperature, 102.5° ; respiration noisy; grey cyanosis; tracheal tug; abdominal recession and inspiratory stridor; child in a critical condition. Instruments introduced into trachea and liberated a flood of pus and blood. Under constant mopping both main bronchi were explored, also the right inferior lobe bronchus. At the end of the right main bronchus an area of bleeding and intumesence was encountered and passed with difficulty. As no foreign body appeared and the patient was in extremis, the search was discontinued after an hour's work. The child was put to bed, and in a short time was breathing easily, deep, and with much less noise than before the operation.

The subsequent behavior of this case suggests that this patient was being drowned by his own excretions, for after emptying the trachea and bronchi of the retained pus and blood respiration was easier, deeper and less labored than before. He passed through a broncho-pneumonia and a week later was in good condition. My failure to find the bean was due to the fact that it was probably in a swollen small bronchus or had ulcerated through the bronchial wall, and I was unable to locate the perforation.

Case 5: Mrs. W. H. H., aged 42 years. History. Nine years ago, while eating hurriedly, became choked on bolus of beef steak. Since then hurried eating of poorly masticated food frequently precipitated choking spells, which have lasted fifteen to twenty minutes, during which time nothing could be swallowed. Esophagoscope showed oval ulcer, of about 2 cm. in longest diameter, just below the lower border of cricoid cartilage on anterior esophageal wall; edges thick, center dark, red and bleeding easily. At this point the lumen of the esophagus was reduced considerably, a tube of 11 mm. diameter passing with difficulty.

She was given Hyd. Chl. Cor. grs. 1/16 t. i. d. in a glass of water to be taken in sips, and applications of nitrate silver grs. 100-Aq. ℥1 applied to the ulcer every third day. Near the end of the healing process bougies were used to dilate the stricture. During the treatment which occupied two months, the patient gained twenty pounds in weight and now eats meat freely, a thing she had not done in nine years.

Case 6: E. Hughes, 5½ years old, had severe diphtheria when 18 months of age. No serum administered; convalesence protracted. Since this illness he has never been able to swallow any solid food, and semi-solids are swallowed with difficulty. Has lived mainly on soup and milk. This was a very obstreperous and unruly child and a general anesthetic was necessary. The instrument entered the esophagus and passed easily to a point just above the sternal notch, where a perfectly normal mucous membrane stretched like a diaphragm across the lumen with a central opening about

1½ millimeters in diameter. With a dilating instrument this was stretched under direct guidance of vision to about 5 mm. in diameter. This was probably a congenital membrane.

Case 7: Hughes, 5 years old. For two weeks attacks of spasmodic coughing leading to cyanosis and syncope. After careful questioning it was brought out that two weeks previously he was found on the piazza steps in a stupid condition by his little sister. Her cries brought the mother, who thought he was just recovering from a fainting spell. On further questioning the child admitted that he had swallowed a piece of stick he had been holding in his mouth. When first seen by me his temperature was 101°; pulse, 130; breathing was quiet and the only clinical condition discovered by examination of chest was a general moderate moisture with reduced vesicular murmur over right middle lobe.

The child was so insistent that a piece of stick had "choked" him that I proceeded to use the bronchoscope without an x-ray negative. This proved to be an error because the offending body was a large lead bullet 32½ mm. by 30 mm. in circumference, which was located at the bottom of the left main bronchus after time lost in exploring the whole right tree. It was very difficult to grasp the bullet firmly enough to dislodge it, it disengaged itself several times, and was brought through the cords by exerting considerable force. Recovery without complications.

Case 8: Baby, 2 years old, was brought to my office within two hours after swallowing a safety-pin. It had no cough, but refused to swallow anything and was dribbling freely. My first procedure was to introduce my finger into the pharynx, then passed it over the laryngeal introitus and into the esophagus as far as possible when I encountered a hard substance.

Placing the baby in a winding sheet in the Johnston position, I passed a Jackson laryngoscope over the cricoid cartilage into the esophagus and on firm retraction of larynx exposed the shielded end of an open safety-pin, point to the right. It could not be withdrawn as the point engaged the soft tissues, but after pushing it down a short distance, I turned the point to the vertebra and then extracted it by direct force, the pin being a small one, the pointed-end yielded after engaging it in the body of a vertebra. It was 1 inch long and ¼ inch wide at hooded end. Recovery without complications.

Remarks: I believe that case 2 died from too forceful dilation of the subglottic area with a full-sized intubation tube for the age. Respiration ceased on the first introduction of the bronchoscope in the swollen trachea in the early stages of the operation and had to be withdrawn immediately. In the future I shall be careful not to use force in entering the trachea. Killian has recently insisted that we have been using tubes of dangerously large diameter, and recommends a much smaller set for children than formerly used.

Anesthesia: To inspect the larynx none is ever necessary, no matter what the age of the patient. Morphin and atropin are of great assistance in exploring the bronchial tree but never give enough morphin to overcome the cough-reflex, for it is the "watch dog of the lungs." The upper end of the esophagus can always be exposed with a speculum even in obstreperous children by using a winding sheet, placing them flat on their backs and introducing the speculum between the cuspid and bicuspid teeth with the patient's head turned about 60 degrees away from the operator.

With the co-operation of an adult patient the whole trachea and esophagus can be inspected after an application of 4 per cent cocain to the pharynx and larynx. I am convinced that no attempt should be made to pass an instrument into the trachea of a vigorously resisting child. I have found atropin of much assistance in these cases as it lessens the bronchial secretions, thus expediting investigation; it prevents an immediate post-operative out-pouring of secretions into the trachea and bronchi. This complication has, I believe, caused the death of a few patients. Jackson has an excellent editorial on this subject: "Drowning of a patient in his own secretions," in THE LARYNGOSCOPE, December, 1911.

Case 3, reported in this paper was moribund when it reached my office, not because of the grains of corn-bread in its respiratory apparatus, but because of the abundance of mucus which it was unable to cough up and which was drowning it.

Case 4 is also an example of this kind. There was only a small area of consolidated lung-tissue, yet cyanosis was present because the respiratory tree was filled with pus, mucus and blood, thereby interfering with oxygenation. This patient would undoubtedly have died had not the abundance of fluid been removed.

A NEW TONSIL HEMOSTAT.

Dr. Arthur W. Watson, Philadelphia.

For a long time the writer has been of the opinion that very little pressure was necessary to control hemorrhage following tonsillectomy, and that it was not necessary to have such heavy and cumbersome instruments as those now in use for that purpose. The instrument here described and pictured was made with that idea in mind. It is a tonsil hemostat but not a tonsil clamp. It acts on both tonsil fossae at the same time by pressure from within only, thereby causing less pain to the patient and avoiding the danger of undue constriction of the tissues and consequent sloughing The instrument is made very light and as simple as possible in construction. Being light it does not drag on the patient's mouth and the simple construction does not readily get out of order and is inexpensive. The blades are separated and pressure regulated by bringing the handles together, and they are retained in any position by the ratchet. As there is no lock, simply a pin, the handles can pass each other and thus the separation of the blades may be very wide, accommodating the instrument to adults as well as to children. The oval plates for pressure are roughened to prevent slipping of the gauze or cotton wrapping. This wrapping should be made large or small according to the size of the fossae to be compressed. The length of the instrument is five and three-quarters inches. This hemostat was originally devised more especially to be used immediately after completing the tonsil operation, in order to save the time that frequently is lost in controlling all hemorrhage before sending the patient from the operating table, a saving which is very appreciable when doing a number of such operations consecutively. Under these circumstances the patient may be removed from the table with the instrument in place and left in the care of a nurse, and the next operation proceeded with. After fifteen or twenty minutes the instrument may be removed. This hemostat, however, is just as useful for controlling hemorrhage which may come on later, and can be worn as long as any other hemostat. The instrument has now been in use, by the writer and others, for about six months and has proved its ease of adjustment, with no tendency to slip (which cannot be said of all the clamp hemostats), and its efficiency in the control of hemorrhage.

126 South Eighteenth Street.

UNIVERSAL SYRINGE FOR EAR, NOSE AND THROAT.

Dr. P. Schoonmaker, New York City.

This instrument meets all the requirements for cleansing treatment of the ear, nose and throat, and is the only instrument combining these qualities on the market.

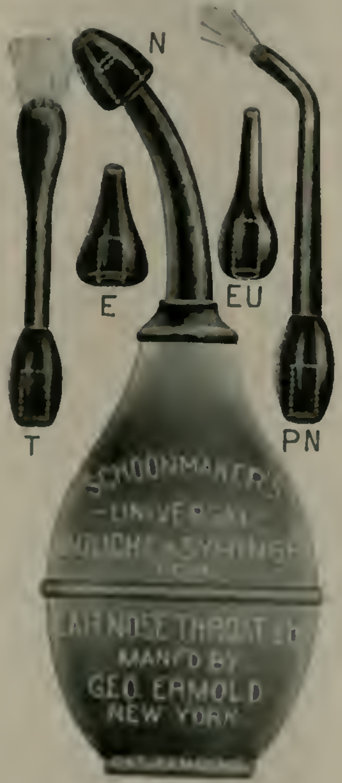
It is made of hard and soft rubber and has no loose joints, cavities or rough places to retain infection. It is simple, durable, easily cleansed and sterilized, does not get out of order, and requires no additional means for its use.

The instrument consists of a firm, pear-shaped rubber bulb of six-ounce capacity, made of the best rubber. The small end is reenforced and fits closely to and is cemented to the neck of a hard rubber pipe. The pipe is five inches long and is bent to an angle of forty-five degrees. The proximal end of the pipe has a neck and shoulder for attachment to the bulb. The distal, or small end, is ground even to make a friction joint with the tips.

The tips are made to conform to the end of the pipe and are held firmly by the friction joint. There are five tips which are designated by letters.

The nasal tip (N) is of hard rubber, conical in shape, the end being contracted to conform to the nasal opening of an adult or child.

The ear tip (E) is made of soft rubber, is acorn in shape with a small tubular extension to introduce into the external aural canal, but will not reach the drum membrane. With this tip attached to the bulb, the physician or patient can thoroughly cleanse the external canal of the ear with a warm antiseptic or aseptic solution thrown into the ear by compressing the bulb filled with the fluid with sufficient force to cleanse the parts of secretions or foreign body, or to irrigate the ear in diseased conditions. The middle ear can be aspirated of secretions when there is a perforation of the drum membrane, or after a paracentesis. Where there is a small perforation, it should be enlarged to give free drainage. In aspirating the middle ear, the bulb should be compressed, and the ear tip pressed well into the canal and allowed to expand If it does not, withdraw it a little allowing some air to enter the canal. The bulb expands with enough force to produce a vacuum in the canal and aspirate the secretions into the outer ear, but not into the bulb; the next syringeful cleanses the canal of secretions and again aspirates the middle ear on allowing the bulb to expand. Cases with acute or chronic otitic discharge heal more quickly when this manner of treatment is carried out than with the usual routine method of cleansing, as it is assisting Nature's method of freeing the parts of irritating discharges without force enough to do damage to the ear. This instrument can safely be placed in the hands of patients giving them instructions and showing them how to use it.



The throat tip (T) is an oval, spatula-shaped tube of hard rubber with expansion of the end and several large perforations. With this tip attached to the bulb a coarse spray can be thrown into the larynx. This tip can be used in children and adults when they are unable to gargle.

The post-nasal tip (PN) is a hard rubber tube with perforated end bent upward. With this the naso-pharynx can be thoroughly cleansed.

The Eustachian tip (EU) is of soft rubber, the distal end fits into the end of an Eustachian catheter, and is used with the bulb to inflate the middle ear, or aspirate mucus from the pharyngeal end of the tube. With this method one can estimate quite accurately the amount of pressure required to open the tube. This tip can also be used with proper canula to wash out any of the facial sinuses.

This instrument can be used as a Politzer bag or for pressure for the fistula test of the semicircular canal.

There is no other instrument on the market that combines all these qualities for cleansing treatment of ear, nose and throat.

Unless otherwise ordered, it is put up with the aural and nasal tips. Careful directions are furnished with each syringe. It is sold under the name of Schoonmaker's syringe for ear, nose and throat.

Manufactured and sold by the Euclid Rubber Company, 2345 Broadway, New York.

Broadway and Eighty-sixth Street.

Spasmodic Retraction of the Esophagus in a Child of Sixteen Months. LAROZIERE. *Revue hebd. de Laryngol.* March 28, 1914.

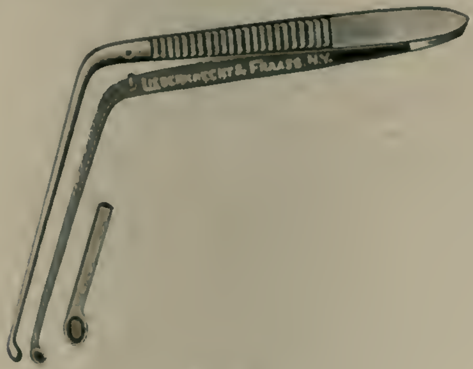
Spasmodic retraction of the esophagus is characterized by a constriction of the pharyngo-esophageal canal more or less prolonged. It is rarely idiopathetic and nearly always symtomatic of some general or local condition, sometimes being the only manifestation of a neurosis.

In the case reported the paroxysms had developed after the swallowing of a button by the little patient and, continuing for 25 days, had resulted in marked emaciation. Two radiographs were made without results and the esophagoscope failed to show a foreign body or ulceration, but the passage of the tube was followed by gradual improvement and a week later the symptoms had disappeared. The spasm had evidenly been produced by a foreign body and had persisted after its spontaneous expulsion. SCHEPPEGRELL.

TWO MODIFIED FORCEPS.

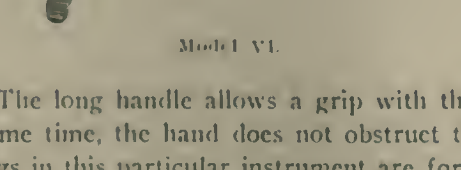
Dr. Emil Amberg, Detroit, Michigan.

1. A forceps (Model 5) to be used by the assistant in a mastoid operation, modified and somewhat different from the forceps published in the Transactions of the Michigan State Medical Society, 1899, and the one presented to the American Otological Society, 1913. This forceps is somewhat stronger and the branches are somewhat shorter (about one inch long) and stouter. The handles, 5½ inches long, allow the assistant to keep his hand out of the field of operation



Model V.

2. An ordinary knee forceps on a somewhat enlarged scale. (Model 6.) The handles are about 4½ inches and branches 4 inches long. The long handle allows a grip with the whole hand, and, at the same time, the hand does not obstruct the view. The cup-like endings in this particular instrument are for a special purpose, namely, to remove superfluous granulations in a wound after a radical mastoid operation, and otherwise irrelevant in as much as the general shape of the forceps is concerned.



Model VI.

270 Woodward Avenue.

THE DEAF

Their Education—Improvement of Conditions—Responsibilities and Participation of the Profession.

JOHN DUTTON WRIGHT, M. A.
DIRECTOR OF THE WRIGHT ORAL SCHOOL FOR THE DEAF
NEW YORK CITY

The aim of this department of THE LARYNGOSCOPE will be to bring to the notice of its readers from month to month, facts that may be helpful to physician and patient in dealing with the life-problems involved in deafness. Suggestions from readers will be gladly received and all questions answered to the best of our ability.

THE EDUCATIONAL NEEDS OF THE DEAF.

A concise summary of information for the guidance of physicians, in procuring for their deaf patients the requisite educational treatment supplementary to medical and surgical relief.

INTRODUCTION.

The physician cannot practice his profession and at the same time perform the functions of a teacher. But he has constantly thrust upon him the necessity of giving advice and guidance to his patients in educational matters. He needs, therefore, to have in his mind, or near at hand for ready reference, the information required to enable him to wisely and intelligently guide those who depend upon him for advice in matters not strictly a part of his professional function.

It will be the object of this series of four papers to supply, with as much brevity as possible, the requisite information. If the several papers are preserved and filed for reference when need arises, many an unhappy patient may be helped, and saved from irreparable error, or from loss of time and opportunity.

If request for suggestion and guidance is not made by the patient, the physician should, nevertheless, give it as part of his professional service, and in many cases it may prove the most valuable thing obtained by the visit to his office.

CLASSIFICATION.

For the purpose of ready reference let us first classify the patients that may present themselves, and then take up the educational requirements of the various classes in the order named.

Class I. Children. A. Under school age. That is from birth to four and a half or five years of age in the case of otherwise normal child. B. Children and young people of school age. 1. Those with hearing slightly impaired from infancy. 2. Those with hearing seriously impaired from infancy. 3. Those totally deaf from infancy. 4. Those adventitiously partially deaf after speech has been acquired. 5. Those adventitiously totally deaf after speech had been acquired.

Class II. Adults. 1. Those with hearing but slightly impaired by conditions that will yield to treatment. 2. Those with hearing slightly but permanently impaired, with, or without, the probability of a progressive increase in deafness. 3. Those with hearing seriously and permanently impaired.

Perhaps, before taking up in detail these groups, it may be well to say a few general words as to the possibilities, educationally, open to the deaf. Every deaf adult, possessing moderately good sight, and an average alertness of mind, can learn to so supplement imperfect hearing by *training the* BRAIN to associate ideas with visual impressions as well as with auditory impressions, that much of the strain and inconvenience of impaired hearing will be removed.

Every deaf child, otherwise normal physically and mentally, can be taught to speak and to understand when spoken to, and can also be given as good an education by the speech-method, without the use of any form of manual communication, as if it were not deaf. This cannot be satisfactorily accomplished, however, when signs and manual alphabet are combined with training in speech, as is unfortunately done in very many public schools for the deaf in the United States.

While it is far better to begin the training in speech as early as the age of 5 years, nevertheless it is possible, where the pupil is anxious to learn, and will heartily co operate with the teacher, to teach a person of good intellect to speak who has never spoken a word up to 18 or 20 years of age. I, myself, have done this, and know of instances where it has been accomplished by others.

Class I. Group A. Children under school age: Hearing-tests and treatment of little children of 2 or 3 years of age are usually rather unsatisfactory to the physician. The difficulties involved in making an accurate determination of hearing-power are very great with a little child that does not respond with certainty. Often there is no specific physical condition to be remedied. What shall the physician say to the parents when he has finished his examination, and has stated his specific findings? He could probably say something as follows:

The child is too young yet for anyone to be able to say definitely how much, or how little, it hears. Nor is it possible to state with certainty that it will not gradually outgrow the present condition; while, on the other hand, the condition may possibly grow worse rather than better. In the case of a child, even a slight impairment of hearing is a much more serious matter than a considerable impairment in an adult. Because even slight deafness in a child interferes with its proper acquisition of speech by imitation of the speech heard from others. It is necessary, therefore, to take every possible precaution to preserve, and to develop to the fullest degree, its sense of hearing. For this purpose great care should be taken to speak loudly and distinctly to the child, and near its ear. The mother, while holding it in her lap, should talk and sing to it; should show it pictures and talk about them; talk about the persons and things around it; at table take special care to teach it the names of the food and the table utensils; in short, throughout the day keep in mind that unless extra attention is paid to the child, its defective hearing will shut it out from acquiring language and speech at the proper time and in the ordinary way. If the child is evidently very deaf, then, in addition to the above directions, the parents should be told to be careful to have the child's gaze fixed upon their lips when they talk to it, in order that even in infancy it may acquire the habit of watching the lips, and so, gradually and unconsciously, learn to associate ideas with their movements, combined with such assistance as may be rendered by the ears. If there is a school for the deaf that the mother can visit where there are oral classes, it would be of value to her to make herself intelligent on the subject.

If the parents will closely follow this advice from the physician the child can be only the gainer. If, as time goes on, the impairment to hearing grows less, no harm has been done; probably the child's development has been hastened; while, on the other hand, if the deafness continues, or increases, then prompt action has been taken, and precious time, that would otherwise have been lost, has been conserved to the immense advantage of the child.

(To be continued.)

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular Meeting, December 17, 1913.

William W. Carter, *Chairman.*

(Continued from page 232, March, 1914.)

In regard to the question of operating without anesthesia Dr. Cocks said that he would like to say a few words: Last year he was asked by the Visiting Committee of the N. Y. State Charities Aid Association to examine a series of school children who had been operated upon for tonsils and adenoids,—a certain number without anesthesia, and a certain number with anesthesia. Of the cases operated upon with general anesthesia, 73 per cent were satisfactorily done. The tonsils were completely removed, or only insignificant portions of tonsillar tissue remained. On the other hand, of the cases operated upon without general anesthesia, 90 per cent were badly done. These figures prove conclusively that adenoid and tonsil operations on children should only be performed with a general anesthetic.

Dr. Guntzer asked whether the Board of Health takes any notice of the small embedded tonsils with enlargement of the lymph nodes, as an indication for operation, and also whether they consider a persistent discharge from the ear as an indication for operation upon tonsils and adenoids.

Dr. Voislawsky asked where the Board of Health Stations were located and how many there were in the city. It was his experience that at the Hospital anywhere from six to a dozen slips were brought in every week, and it was impossible to accommodate all the cases that should be operated upon. That was not saying that all of the children who brought the slips required operation. So far as he could learn, in our general hospitals where tonsils and adenoids were removed, as many children are operated upon as can be accommodated.

The Doctor said that he did not believe that any of the members of the section were antagonistic to the Board of Health, but rather that they were grateful to Dr. Park and to the other members for what they were doing,—but it is feared that there are not sufficient stations and hospitals to accommodate the demand.

Dr. Cohn asked whether the children had a return slip given to them

Dr. Carter said that the members of the Section were to be congratulated on having Dr. Baker present this matter before them in such a clear and concise manner. There was one matter to which he would like to refer which had been brought up in the discussion, but which was not strictly germane to the subject of the paper, and that was operations on adenoids and tonsils without an anesthetic; the statement that the enucleation operation is done time after time on children and adults in three minutes without an anesthetic has been made. Dr. Carter felt that this statement was open to criticism; he wished also to remind the members that the Section has placed itself on record as being unreservedly opposed to the removal of adenoids and tonsils without an anesthetic by any method whatsoever.

Dr. Coffin asked Dr. Baker if she had ever seen a case in which tonsillectomy had been well done, which seemed to have been harmed on account of the consequent lack of tonsillar tissue.

Dr. S. Josephine Baker: I came here to-night not to criticise, but, if possible to defend the position that the Department of Health has taken in this matter. I seemed to me that the statement embodied in your resolution required explanation, particularly as a body like the Public Health Education Association had used your resolution as a basis for asking us to have the school inspectors state whether or not, in their opinion, a case of hypertrophied tonsils should be subject to operation.

I do not believe that the medical inspectors in the schools should give an opinion as to whether or not operation is advisable. The inspectors we get are from the Civil Service list, and, as a rule, are competent physicians. They should know whether or not tonsils are hypertrophied but. in the short examination made in the school, I do not believe they can obtain the necessary information to decide whether or not an operation should be performed.

In answer to the question as to whether or not I have seen injurious results from tonsil operations, I would say that I have never seen a case where the operation was properly performed where the child suffered any harm afterwards. The statement that only 20 per cent of the cases listed by the school inspectors as hypertrophied tonsils were operated upon shows, in my opinion, that we have too few operations rather than too many.

This brings up the question of hospital facilities, as the Bureau of Child Hygiene does not believe that operations in dispensaries are proper. I wish to repeat that in no inconsiderable number of cases where children have been operated upon in dispensaries there has been considerable hemorrhage requiring medical care at home.

Physical examinations of the school children are all made by physicians; the nurses never examine the children physically. In each case where anything wrong is found a slip is sent to the parents telling the nature of the disease. The department would like, in each instance, to have this slip endorsed by the doctor who is taking care of the child. and the department always accepts as evidence of treatment any statement from a physician to this effect. The decrease in the number of cases of hypertrophied tonsils in the last few years is due, in my opinion, largely to the care that these children have received. There is no doubt, however, that some of the reduction is due to improved diagnoses. The doctors that are working in the schools now are largely the same men who were working there four years ago, and while they are more careful, it is probable that a large number of cases that have been operated upon in the last four years must account, to a very large degree, for the reduction.

I feel very strongly in regard to the question of anesthesia for operations in these cases, and that is the reason that I believe we should have more hospital facilities. Without anesthesia, there is a very serious result in the shock to the child and, in addition, the operation is very often poorly done. A very extreme case was brought to my attention not long ago. A laboring man came to me with his boy, and said: "My boy has been sent out of school with a slip stating that he has enlarged tonsils. This is the fourth time this has happened, and three times I have had his tonsils taken out." I asked him where, and he named three of the most important dispensaries in Manhattan. I asked him if they removed the tonsils without anesthesia and he said: "Yes, the boy was held down while the tonsils were removed, the boy struggling and crying violently during the process." Each year the boy had come home again from school after examination by the school doctor with the statement that his tonsils must be again removed. The man was perfectly willing to do everything necessary for his boy, but he thought he had met the requirements in having him operated upon three times. I looked at the boy's throat, and had never before seen a throat just like it. His tonsils were like bunches of fringe. I cannot imagine what had been done to him at each operation unless a small piece of the tonsil had been removed in a haphazard fashion, and that the struggles of the child discouraged the operator from completing the operation. The boy was referred to a hospital, operated upon under anesthesia, with satisfactory results.

I do not believe that the school inspectors should diagnose adenoids. After a child has been taught to blow its nose properly, breathing may then be tested and if it is still occluded, the child should be referred to its own physician for a more detailed diagnosis. The results of mouth-breathing are well known to you all, so that there can be no question as to the serious effect of neglect in these cases. As a rule the cause of this occlusion is the presence of adenoid growths.

In answer to the criticism of my statement about the difference of opinion in relation to diagnosis held by the various physicians who answered the inquiries of the Department of Health, I wish to state that each of these gentlemen received a personal letter and each one replied at length. I trust that my remarks have not been taken as criticism of these men individually. The point I wish to make is that a diagnosis which may be made in the office of a specialist in throat diseases, working under favorable conditions, is not always a feasible diagnosis for a medical inspector, working in a school, and having as his only implement a tongue-depressor.

The method we follow in determining the financial status of a child who is treated at the clinic is as follows: The school nurse first visits the home, finds out the income of the father or mother, how many wage-earners there are in the family, and how much rent is paid. In each case a similar investigation is made by the registrar of the clinic. We do not pretend to be more than human, and it is possible that errors are made and, occasionally, a child may be treated whose family could afford to pay, but there is no desire on the part of the department to have this happen, and if any one has knowledge of such a case we are more than glad to receive it and to investigate it at once. It is probably true that there are few other clinics in the city where investigation as to financial status of the family is more carefully and consist ently made. I should like to know, specifically, of any instance in the Borough or the Bronx or elsewhere where a child has been taken to a department clinic without having first been urged to consult its own physician. The families we come in contact with are always referred first to their family physician, second to the most convenient dispensary, and third, and as a last resort, to the Department of Health clinics.

During the last year about 58,000 children obtained treatment as a result of the work of medical school inspection. Of this number 52 per cent were treated by private physicians and these are all cases which would not have sought medical advice unless they had been referred by the department inspector.

The department's clinics for school children are located as follows:

Borough of Manhattan: 341 Pleasant avenue, 449 East 121st street, 164 Second avenue, Gouverneur Slip.

Borough of the Bronx: 580 East 169th street.

Borough of Richmond: 689 Bay street, Stapleton.

Borough of Brooklyn: 330 Throop avenue, 124 Lawrence street, 1249 Herkimer street.

Regular Meeting, January 28, 1914.

Dr. J. Henry Guentzer, Chairman.

1. **Laryngeal Growth.** Presented by Dr. Wolff Freudenthal.

The patient was a brick-layer by occupation, 67 years of age, who had suffered from pain in the throat since last May. He had been to different clinics and was examined several times. Finally a diagnosis of carcinoma of the larynx was made and he was referred by Dr. Harris for treatment with radium. Dr. Freudenthal said that he had another piece of tissue examined, and the report stated that it was malignant neoplasm.

When he first saw the patient there was an extensive growth reaching from the base of the tongue down into the right portion of the larynx. It was difficult to determine the size, but it looked to be as large as a thumb. It was treated with radium for periods varying from half an hour to two hours; then the mass began to break down, until instead of the former large mass there is a deep depression and the case resembles a broken-down gumma,—which it is not, but that is the effect of the radium in this case. Whether or not the condition can be cured cannot as yet be stated positively. Very few cases of real malignancy can be cured in spite of the optimistic newspaper-reports.

2. **Leontiasis Ossea with Marked Involvement of the Maxillary Sinus.** Presented by Dr. Wolff Freudenthal.

The patient was a boy, 16 years of age, born in this country. He could not tell much about his history for he had lost his father and mother early. About nine years ago the mass in the neighborhood of the left antrum began to grow and has since increased slowly. There was no accompanying pain. When Dr. Freudenthal first saw the case, about half a year ago, he made a diagnosis of osteoma of the antrum. Careful examination of the patient showed also hard bony growths all over the body.

Since last year one has been noticed on the femur, which is growing. The hands were not quite normal and the bones of the skull were thickened all over. Many radiographs have been taken which show the condition quite clearly. The question of operation was considered, but it was decided not to attempt anything of the kind. The patient has been examined by a number of general surgeons and all agree that it is best to leave him alone. There is a possibility that the condition may have something to do with hereditary syphilis. This was suggested by Professor Virchow, who gave to the condition the name of leontiasis ossea. The Wassermann reaction is negative in this instance.

DISCUSSION.

Dr. Carter said that he personally had never seen one of these cases but had been consulted by a physician in Columbia, S. C., about one almost identical with the one shown to-night. In this instance, however, the patient was a girl, 12 years of age, in whom the osteomata began to develop when she was 7 years old. The first one made its appearance in the same position as in this case of Dr. Freudenthal's,—over the antrum, —next on the scapulae, humerii, the radius, and the femur on one side. The osteomata began as small enlargements of the bone, and increased to such an extent that the one on the femur has interfered with locomotion, as the child can scarcely walk on account of the severity of the pain due to pressure on the nerve. X-ray plates showed that these tumors were part of the bone from which they sprang; they were solid tumors. The child was an eight-months baby and the parents were perfectly healthy so far as could be learned. The child was fed on the bottle, but was strong and healthy up to 7 years of age. The physician was in doubt as to what should be done. He had given the child all sorts of treatment, mercury, the high-frequency current, electricity in various forms, and everything that he could think of, but the tumors continued to grow. Dr. Carter said that when he last heard from the case, last April, the tumor over the antrum had increased to such an extent that the cheek was protruding upward and the child could not open its eye fully.

Dr. Abraham, referring to the case of carcinoma of the larynx treated with radium, said that he had had two somewhat similar cases treated with radium but that he could not offer Dr. Freudenthal much encouragement, for in both instances the results were very poor. One of these was seen in consultation with Dr. Abbe. The radium was applied three times with absolutely no effect. In another instance Dr. Abbe himself had advised against the application of radium. Dr. Abraham said that he knew very little about the pathology of the condition in the other case, but would suggest a trial treatment with pituitary gland extract.

Dr. Harmon Smith, speaking of the resemblance of laryngeal carcinoma to syphilitic involvement following the application of radium, said that in a case of laryngeal cancer recently coming under his observation, following a thyrotomy for its removal, Dr. Freudenthal had twice applied radium and that the tissues had assumed an appearance remarkably similar to that of syphilis. In fact inspection of the larynx at the present moment would lead the observer to believe that it was a syphilitic involvement rather than cancerous.

Dr. Freudenthal inquired whether the case to which he referred was white or colored.

Dr. Carter replied that the child was white.

Dr. Freudenthal said, replying to Dr. Abraham, that the suggestion of pituitary gland treatment appealed to him, and he would try it. With regard to treatment of the larynx with radium, a few sessions of a half to three-quarters of an hour are not enough. Besides, it ought to be placed in the larynx and not nearby! In a few post-operative instances he has applied it for as long as twenty hours. He would be very glad to hear the outcome of the cases spoken of by Dr. Smith.

Plastic Operation for the Restoration of the Severed Vocal Cords on One Side Following Traumatic Self-inflicted Injury of the Throat.

Dr. Harmon Smith.

This is a case of attempted suicide in which the patient used a razor in the right hand, cutting his throat from left to right transversely across the thyroid cartilage. The cut was deeper on the left side than on the right, involving the recurrent laryngeal nerve of that side and severing the thyroid cartilages transversely and from above downwards, at the same time cutting away from their anterior attachment the true and false cords of the left side. When the wound healed a permanent fistula in the cartilaginous box remained and the ends of the severed cords were left flapping in the air tract. The movement of the left side was unappreciable. To overcome the condition present the ordinary incision for thyrotomy was made, the detached cords stitched to the perichrondrium of the thyroid cartilage and the fistulous opening in the cartilaginous box closed. The accident occurred in November, 1912, and the operation in June, 1913. During the last three or four months the movement on that side of the larynx has been improving and from an unintelligible whisper the voice has increased to a husky but perfectly intelligible one. The movement of that side of the larynx demonstrates the fact that the recurrent laryngeal nerve has re-established some of its nerve function, although it is claimed by some neurologists that a severed nerve never regains its function.

Laryngo-pharyngeal Abscess. Dr. F. White.

August 21, 1913: bone lodged in patient's throat. Ordinary means used to dislodge it (dry bread, etc.). Consulted doctor and throat was washed out for about half an hour with no result. Went to a hospital for treatment but without result, then went to Manhattan Eye, Ear and Throat Hospital. Was treated by the house-surgeon without success Next morning he returned to the first-mentioned hospital and had an x-ray picture made. Bone not located.

August 31: Returned to Dr. Harmon Smith's clinic at the Manhattan Eye, Ear and Throat Hospital for treatment and came under my care. Upon examination the throat showed all the signs of a very active inflammation. The details of the larynx could only with difficulty be made out. Patient could swallow fairly well, however. A careful examination by the indirect, and a superficial examination by the direct method revealed no foreign body. Advised him to come into the hospital for local treatment and for thorough examination by the direct method. This he did not do. X-ray negative. On account of illness I did not see the patient for several weeks but he came to the clinic regularly.

September 5: During a hard spell of coughing the patient stated a piece of bone was dislodged from his throat and expectorated. He exhibited the specimen.

October 15: Returned to work as his throat apparently was progressing favorably, but in a few days had to give up on account of the severe pains in the back of the head. He was treated at a doctor's office but came back to the clinic and was taken into the hospital for a couple of days, and the swelling about the left arytenoid was incised and a small amount of pus allowed to escape. In a few days the swelling reappeared and gradually increased in size despite frequent incisions.

November 8: An external esophagotomy was performed by Dr. Macpherson and me, and the areas involved, namely the tissues about the left arytenoid cartilage, the beginning of the esophagus and posterior portion of the pharynx in relation to these structures were freely opened and drained. The temperature the next day was 101°, but dropped to 100 and remained so for about two weeks.

December 6: The patient was discharged from the hospital. He had a temperature of 99.4° for some time, but for the last couple of weeks it has been normal. On account of the severe pains in the back of the head and wishing to eliminate any deeper lesions, Dr. Geo. E. Brewer was called in consultation. He coincided with all that was being done. Patient is now free from pain, eats and sleeps well. Regained weight.

Pathological Reports: Wassermann reaction, negative (two occasions). Pus from abscess, streptococci. Specimen from throat, granulation tissue. Moro tuberculin test, negative.

DISCUSSION.

Dr. Harmon Smith said that he examined the patient when he first presented himself at his clinic and at that time there was a distinct abscess at about the pyriform fossa which was evacuating pus. The operative procedures which followed seemed at one time inefficient but as the condition has progressed the tumor has entirly disappeared, although the sequence of partial laryngeal paralysis is still in existence.

Dr. Smith said that this demonstrated to his mind that the paralysis was an infiltration paralysis rather than a nerve lesion *per se* and corroborated what Dr. Lynah had called attention to in cases of diphtheritic infiltration paralysis, and that while he had differed from Dr. Lynah relative to his view on the subject, he was now convinced that Dr. Lynah was probably right in the majority of his conclusions.

Specimen. Presented by Dr. H. L. Lynah.

The specimen was removed from a patient at the Kingston Avenue Hospital who suffered from laryngeal diphtheria. He had been intubated outside of the hospital by one of the house-surgeons who reported that he had found the patient in extremis when he reached the house and had immediately inserted a tube. Being anxious to learn the condition, Dr. Lynah examined him and found that the tube had been coughed out and had lodged in his naso-pharynx; he suddenly became cyanotic, and a hurried tracheotomy was performed, but pus was inspired into his larynx.

The man breathed for a few moments and then died. Dr. Lynah said that had he not been so over-anxious to examine the man by the direct method, he would have seen that the thyroid cartilage was displaced to the left; the trachea below the cricoid was also displaced.

The specimen is to be examined to find out whether the condition was of syphilitic or malignant origin. As far as could be learned the history showed that the man was sick for a week, but he had denied any specific history. The abscess was an old one and very foul smelling. Pathologically, it shows a fistula. The abscess cavity was lateral and extended behind so that an instrument could be passed in for about four inches. The case was an illustration of the fact that sometimes in being over-zealous one may overlook the main point of a case.

DISCUSSION.

Dr. Carter said that he had examined very carefully the specimen presented by Dr. Lynah, with the view of possibly discovering the origin of the abscess, and thought that he had discovered a place on the inner wall of the esophagus where an injury of some kind had been produced. It would seem that the abscess in this case was produced by the lodgment of a foreign body at a point where the cricoid cartilage compresses the esophagus, which is the point where foreign bodies usually lodge. It was possibly produced by a bone or other foreign body becoming lodged in the throat and setting up an abscess. The appearance of the specimen does not seem to indicate a specific or malignant condition, but it looks like a case of pyogenic infection,—just an ordinary abscess originating in the interior of the esophagus and burrowing into the adjacent tissues.

Cleft Palate and Tumor of the Pharynx. Dr. Linn Emerson.

The patient was a little boy with a cleft of the hard and soft palate. An unusual feature of the case was that the child had also a large fibrous tumor in the vault of the pharynx which Dr. Emerson planned to remove with the adenoid tissue before repairing the cleft. Dr Emerson said that he had seen the turbinate bodies projecting into the pharynx, but never anything like this case before. The tumor has the appearance of a fibrous polypus. The palate itself slopes well and ought to come together very nicely. That will be attended to a few weeks later. The case first came under observation about two weeks ago.

Double Hare-lip. Dr. Linn Emerson.

Dr. Emerson said that this was one of the most pronounced cases he had ever seen. About seven months ago he had repaired the double hare-lip, a drawing of which he had made on the blackboard. The premaxilla stuck out horizontally leaving the mouth and nostrils to form one wide cavity, with the premaxilla sticking out like a horn. A V-shaped piece was cut out of the septum and the premaxilla was brought back into place. If this is taken out, as is sometimes done, it leaves a very pronounced depression of the upper lip in later life. From the method pursued this child has now a very good lip, and two teeth have come through in the premaxilla. That is the fault of taking out a piece from the septum, so that these teeth are inclined back into the mouth, but that is better than taking out the premaxilla. It was quite a problem where to get tissue to close the opening and there were a number of difficulties.

The child was marasmic and was nothing but skin and bones, and the day before that set for the operation it was taken sick with pneumonia and was ill for four to six weeks. Later, when it was about 7 months old, the operation was performed on the lip. Considering the horrible deformity that existed before, the result seems to be very good.

Fatal Case, Resulting from Morphin. DR. LINN EMERSON.

Dr. Emerson said that he felt that failures as well as successes should be reported, and told of a case on which he had operated two days before. This was a case in private practice, the child of a family of considerable means. He had operated very successfully on the lip about six months before. The cleft went forward, clear through the gum, and the maxilla had to be fractured in order to bring it together; this was accomplished satisfactorily and a very nice result obtained. Following this operation the case was treated in the usual manner, the most important feature being to keep the child as quiet as possible. For this purpose he has been in the habit of giving morphin in very small doses. The nurse was instructed to put one-fourth grain of morphin in one drachm of water, and to give the child two drops, or 1-120 of a grain every four hours. The child was operated upon about 4 o'clock Monday afternoon, and early Tuesday morning the nurse called up Dr. Emerson over the telephone and reported that the child had passed a very restless night and had cried all night, and that the mother was very insistent in demanding that the child ought to be kept quieter. Accordingly, he instructed the nurse to give another drop; in that way the child got 1-80 grain hypodermically.

On Tuesday the child had three doses, at 8, 12, and 4 o'clock. At noon it was reported doing very well, and had a temperature of 101°. At 6:30 in the evening, the nurse reported that the child had a temperature of 105°, but did not say that anything else was wrong; so Dr. Emerson said over the phone that he would call to see it after dinner. On reaching the hospital at 9 o'clock, (having stopped on the way to see another patient) the interne reported that he had been trying to reach him for an hour, as the child's condition seemed very precarious. This was the first intimation he had had that there was any cause for anxiety.

At that time the child had a temperature of 105°, the respirations were shallow, but not slow,—about 20. He told the parents that he thought the child had had too much opium, still its reflexes were not abolished, the pulse was strong and full, and the heart was 120, but the respirations were quite shallow. He gave the child 1-120 of a grain of strychnin, and instructed the interne not to over-stimulate the child so that it would be wide awake and crying in three or four hours, but to watch it very carefully and if it did not improve to give it more strychnin; and that he himself would return in a very short time. He then went to make another call, and when he returned the child was dead. The interne said that the nurse had reported that the child was failing rapidly, and before she could administer the hypodermic it was dead.

There is no doubt but that the child died of the effects of the opium. It was 11 months old, and had had one-fifteenth of a grain of morphin in thirty hours, the first dose being 1-120 of a grain, and the last three one-eightieth of a grain.

The autopsy was performed this morning. Dr. Freeman was of the opinion,—on account of the fever,—that the child had pneumonia. This proved not to be the case, but it seems quite certain that death was occasioned by opium poisoning. The child probably had an unusual idiosyncracy to opium, for much larger doses have been given frequently without any bad results.

DISCUSSION.

Dr. Carter congratulated Dr. Emerson on the excellent results obtained in the cleft palate case, and then told of a case of his own, a child, 9 months of age, who had been operated upon three times before he saw it. The child came from the west, and one of the men who had operated cut off the premaxillary bone. Dr. Emerson's case showed the advantage of preserving this bone. In his own case, it was impossible to approximate the two sides of the superior maxilla. However, he wired the two sides and brought them somewhat closer, but it was impossible to bring them together entirely. The lip was a difficult proposition; he had to dissect the upper lip way up from the superior maxillae on both sides in order to get enough tissue to make a lip. He then made strong traction by means of adhesive straps on both sides in order to approximate the edges and relieve the tension. But where the pre-maxillary bone is missing there is a depression. A recent report from the case indicates that the two sides of the superior maxillae have gradually been pulled together by the newly constructed upper lip, and that the deformity is much less than it was shortly after the operation.

Dr. E. A. Bogue said that he had not intended to take any part in the discussion but in view of what Dr. Carter had said he wished to add a word in favor of Dr. G. V. I. Brown's method of putting on adhesive plaster strips when the pre-maxillary bone is projecting, and continuing that for some time. In that way Dr. Brown had been able to retract the entire inter-maxillary bone through pressure on the lips and cheeks and has avoided the necessity of destroying or injurying it. This is a matter of great importance to the patient, as the permanent upper incisor teeth are involved.

Dr. Emerson said that in the case he had reported the child had worn adhesive strips for three months without any appreciable effect in getting the pre-maxillary bone back into position. He had had to undermine it far back in order to bring the lip forward and get union.

Dr. Carter said that in the case to which he had referred the premaxillary bone had been removed before he saw the child. He hoped that Dr. Bogue had understood this.

Report of Three Cases of Foreign Bodies Removed from the Bronchus.

Dr. Sidney Yankauer.

1. *Kernel of corn removed from the right stem bronchus*: Dr. Yankauer showed the grain of corn, which had been inhaled by a child of 5 years, living in Paterson, N. J. The case was interesting because of the classic symptoms presented. The child became cyanotic directly after the accident, and this continued until the child was exhausted, when suddenly it gave a deep inspiration and the foreign body passed into the trachea and the cyanosis was relieved; this was followed by a paroxysmal and

spasmodic cough for twenty-four hours, during which time the foreign body which was now located in the trachea was moved up and down with respiration. At the end of this time, the foreign body was caught in the lower part of the right bronchus, the spasmodic cough ceased, and the child had an ordinary bronchial cough. Under general anesthesia there was no difficulty in passing the bronchoscope, but the subglottic space was markedly swollen and some difficulty was encountered in passing it. When this was overcome the kernel was removed without difficulty.

2. *Upholsterer's tack removed from the lower lobe branch of the right bronchus*: In this case the patient, a child 7½ years of age, inhaled a brass-headed upholsterer's tack. The patient was admitted to Mount Sinai Hospital on November 14, and was bronchoscoped on November 21 under general anesthesia, and the foreign body removed. The x-ray picture showed that the tack had become lodged low down in the lung, within an inch of the diaphragm, and on passing the bronchoscope into the right bronchus it was found that the tack had lodged in the lowest branch of the right bronchus, the point of the tack being upward, which prevented it from being expelled, as the point became lodged in the wall of the bronchus. The bronchial mucous membrane was swollen and the stem of the tack was surrounded by this swollen mucous membrane, so that it was difficult to see the shank of the tack, and only a very small part of the head could be seen. With cocain and adrenalin, the swollen tissues were reduced sufficiently to allow half of the tack to be seen, but no attempt to dislodge it succeeded, for it was firmly imbedded in the mucous membrane. Dr. Yankauer said that although he succeeded in passing a hook around the shank, he could not free it until he employed an instrument which he had devised some time ago for this purpose, as tacks of all kinds are particularly difficult to remove, for the head of a tack will be caught by the swollen mucous membrane and the point will become imbedded. He showed the instrument which he used, which consisted of a rod with a claw at one end, something like a carpenter's claw hammer. With this he demonstrated how he got the claw of the instrument over the shank of the tack, and then by pushing the instrument down and rotating it, was finally able to bring the point up. This procedure worked very well, but one difficulty was encountered. As soon as the point was lifted up the elasticity of the bronchial wall pulled on the head and snapped the point over against the opposite wall; it was not until after much manipulation that he was able to get the point of the tack inside of the bronchoscope, and then to lay hold of it with forceps.

Even then the difficulties were not ended, for the entire head was still surrounded by swollen mucous membrane, and was located in a small branch bronchus. After the tack was in the grasp of the forceps it was found impossible to dislodge it by traction but by repeated lateral movements, working it first against one side and then the other he finally succeeded in getting it out of the smaller bronchus and into the main bronchus, and then got it out without any further trouble.

Dr. Yankauer said that this was unquestionably the most difficult case with which he has ever had to deal. It presented very few symptoms of the presence of a foreign body and the child was not greatly inconvenienced by it. Two or three days after the operation it caught cold and had bronchitis for twenty-four hours, but was soon out of bed and discharged.

3. *Piece of bone removed from the middle lobe branch of the right bronchus*: This was another case of especial interest and some very instructive x-ray plates were shown. The patient was a man, 45 years of age, who had had an alcoholic pharyngitis and a slight cough which troubled him from time to time. One day, while eating, he began to cough, and swallowed a number of pieces of chicken bone. He coughed a good deal after that, and some one suggested that he might have swallowed the chicken bones. He watched for them in his stools, and a couple of weeks afterwards found a number of the pieces. The cough, however, continued and finally got so bad that he could not sleep. He had chills and fever, and night sweats, and was a very sick man. He also had pain in the right side of his chest. He consulted an internist, Dr. George Mannheimer, who in turn consulted Dr. Yankauer and presented this proposition: Here is a patient who states that he swallowed a foreign body some five or six months ago but passed foreign bodies per rectum, but the cough continues and he has other symptoms indicating the presence of a lung abscess.

There was evidence of consolidation on one side with a good deal of expectoration, and Dr. Mannheimer suggested that he might have some of the pieces of bone in his lung. An x-ray picture was taken, and showed the shadow of the diaphragm continuous with the shadow of the abscess.

The patient was brought to Dr. Yankauer's office, and under local anesthesia the bronchoscope was passed into the right bronchus. The opening in the middle lobe was easily reached and just beyond the opening there was a considerable quantity of pus. Upon wiping this away more pus appeared, and eventually it was determined that there was a foreign body there. The moment this was touched there was a gush of pus which continued until the abscess-cavity emptied itself. It was a little difficult to get hold of the foreign body, but finally it was brought out through the bronchoscope. The abscess-cavity was completely emptied after the removal of the foreign body.

The patient's cough improved materially, he was able to sleep at night, and his expectoration during the day was very much less. He was not, however, satisfied. The bronchoscopy was done on November 8, and for two or three weeks he contined to cough. He expressed the opinion that he had more bone in his lungs and wanted another bronchoscopy. Accordingly, three weeks later a second bronchoscopy was performed, but nothing was found and it was determined that the bronchus was normal in size. After this, the patient continued to improve, and eventually the cough ceased altogether. On December 22, another x-ray picture was taken, and in this plate the shadow of the heart is normal and the edge of the diaphragm is visible all the way over, in the normal manner. The patient is now entirely well.

During the course of the operation the patient coughed up a large number of pieces of casts of the bronchial tube, which were preserved as they were rather interesting.

DISCUSSION.

Dr. Quinlan said that this very interesting series of cases reminded him of one he saw last fall. A physician consulted him regarding a patient from one of whose molar teeth a dentist had removed a large gold crown. The patient was convinced he had swallowed it, especially as he felt some discomfort at the junction of the left lower ribs at the diaphragm. He had no other subjective symptom, but stated that in the morning, when he brushed his teeth, he coughed slightly, with a stain of blood in his expectoration. The physician asked what he should do with the patient, who was convinced that he had swallowed the tooth cap and felt it in his chest.

Dr. Quinlan had him brought to St. Vincent's Hospital, where the radiographer made an x-ray plate and thought he detected the outline of the cap of the tooth, but on account of some peculiarity of the lower jaw the bronchoscope could not be employed. How to proceed was a question. It was decided to do a low tracheotomy, and an exploration was made, with radiographic exposure, the radiographer supplying information as to direction with a long Killian forceps. After a time the cap was removed, and with the exception of a slight emphysema the man had no further trouble. The case was interesting, as the ordinary procedures were negative, leaving nothing to be done but the rather unusual measures which were finally resorted to, namely, low tracheotomy and exploration through the bronchial tube on the involved side, guided by the radiographer.

Old Silver Tongue-depressor. Dr. Hurd.

Dr. Hurd presented to the Section a silver tongue-depressor formerly used by Dr. Sass, which had been made by Tiffany, and was presented to him by a patient. This depressor had come into the hands of Dr. E. J. Birmingham, through whose courtesy Dr. Hurd was enabled to make the presentation. It seemed to be of sufficient interest, at least from an artistic point of view, to add to the collection of early instruments already in the possession of the Section.

Dr. Guentzer, in the name of the Section, thanked Dr. Hurd for the interesting addition to the collection.

Urea and Quinin Hydrochlorid in Nose and Throat Surgery. Dr. Arthur J. Herzig.

Dr. Herzig said that he employs a 4 per cent solution made up with 1 per cent boracic acid, and injects ten minims into the anterior pillar of the fauces. He also applies a 50 per cent solution post-nasally to the adenoid space. He then waits ten to fifteen minutes before operating, and performs either a tonsillectomy or a tonsillotomy with the punch operation. The adenoids are removed as usual, with the curette only. There is some bleeding during the operation, but none five minutes after the operation is finished. He has operated on 390 cases of tonsils and adenoids, and has performed six uvula resections and four tonsillar cauterizations. The anesthesia in the pharynx lasts from two to eight days; the edema, from two to ten days. Then a membrane forms at the site of the infection. This disappears in from two to ten days.

In conclusion, he stated that he wished to emphasize the fact that the advantages of urea and quinin over cocain are that the former is non-toxic and that the anesthesia of the pharynx lasts from two to eight days, preventing the soreness that always follows the use of cocain or general anesthesia. It also acts as a hemostatic, even in fibrous tonsils. The disadvantages are those of any local anesthetic, in that the patient gets nervous from seeing the doctor, and also from the sight of blood and instruments.

DISCUSSION.

Dr. Freudenthal said that he had been especially interested in Dr. Herzig's paper, as he himself had written a paper on a similar subject some two years ago for the *Centralblatt fuer Laryngologie*, at the request of Professor Findler, of Berlin.

There is no question about the toxicity of cocain, although now-a-days very few cases of evil effects are reported from its use. Of course no one would dream of injecting a 10 per cent solution into the tonsils of a young child, as has happened in this city. Those accidents that do happen are usually due to a combination of adrenalin and cocain. He had demonstrated in a number of cases that the adrenalin was the cause of the death. The effects of adrenalin-poisoning are so characteristic that if once seen they can never be forgotten. If a large quantity is used the toxic effects are visible in half a minute,—extreme pallor of the face and the next minute the patient is gone.

Coming to the question of urea and quinin hydrochlorid, Dr. Freudenthal said that he had tried this method of anesthesia several years ago and some rather unpleasant occurrences resulted. They were not dangerous, but the edema was rather more than he liked to see and there was some sloughing of the parts which did not heal readily. Shurley, of Detroit, described similar occurrences; so he abandoned it but he had recently taken it up again and had used it very satisfactorily on some cases this summer. He is not yet, however, prepared to give a final opinion regarding it. It can be used to advantage in laryngeal and pharyngeal work where we have to use enormous quantities of cocain and where the toxic effect might be very great, and for these cases he would advise its employment.

Dr. Harmon Smith said that he had never employed this method of anesthesia and therefore the force of his remarks would be to that extent unimportant. He said that he would certainly never employ such anesthesia in children, but in adults, provided the sloughing and slow healing could be averted, he saw no reason why it should not be used, particularly if the good results claimed by the author would follow in the experience of all operators. As to the objectionable results from the use of adrenalin, spoken of by Dr. Freudenthal, he said that he would like to state that the evil results were due to cerebral anemia and that this could be obviated by having the patient in a reclining position at the time of the injection; that the danger of the dizziness and syncope were over in from five to ten minutes after the injection if the patient's head were placed sufficiently low to prevent the cerebral anemia.

Dr. Smith said that if the analgesia lasted for several days, as stated by Dr. Herzig, that it might be an economy of time as well as an advantage to the patient to inject him one day and have him return on some subsequent day for the operation. Moreover in view of these lasting effects of the anesthesia, in the removal of tonsils from adults or in cases of fibrous tonsil, it might be advisable to inject the solution to prevent pain subsequent to the operation.

Dr. Carter said that he did not wish to be considered ultra-conservative about matters pertaining to laryngology, but that he did not see the use of getting out another drug for anesthesia if we have one which is perfectly satisfactory. Objections have been made to cocain on the ground of its toxicity but he has used it in solutions of half of one per cent up to pure crystals and has not yet had a case in which he felt that the symptoms of the patient were due to cocain. Cocain-poisoning has been exploited to a degree that has reflected undue discredit on the drug. On several occasions he has had patients drop over before they have been touched by an instrument or by cocain, merely from the psychic effect of having an examination made. Such cases are not due to the drug, but to the dread of a possible operation. In poisoning by cocain, entirely different symptoms are presented, and he believes that the psychic disturbance is mistaken for true poisoning, which is rare. Several objections to urea and quinin hydrochlorid were admitted by the essayist,—the having to wait for ten or fifteen minutes for the anesthesia, and, on the other hand, that this lasts from six to eight days. Dr. Carter said that the only advantage he could see in such a prolonged anesthesia in operating on the nose and throat is that if one is not satisfied with the first operation and finds that something more has to be done he can do it several days afterward without re-anesthetizing the patient. We do not have edema with cocain and we do not have a false membrane. These objections should stand against the urea and quinin hydrochlorid.

In regard to the hemostatic qualities, everyone knows that cocain is hemostatic, that it contracts the blood-vessels and shrinks the mucous membranes.

Dr. Carter thinks that we should not adopt a drug for local anesthesia in nose and throat work that has no more points in its favor than were shown in the paper. Urea and quinin hydrochlorid is a useful drug, but its greatest usefulness is found in other fields of surgery, as shown by the work of Crile.

Dr. Yankauer said that some years before in a paper read before the Section he had called attention to a method of anesthetizing the tonsil which required a minimum of cocain; it consisted in injecting the nerve of the posterior palatine foramen with a single injection of 10 minims of a 1 per cent solution of cocain. In that way one can anesthetize the entire tonsillar area and can do a tonsillotomy without any pain whatever.

Dr. Myles, referring to the amount of pain experienced by the patient, said that he had heard it stated many times by distinguished physicians that it depended largely upon the power of moral suasion exercised by the surgeon.

Many years ago quinin was used hypodermically for malaria, and at that time some unfavorable results were reported, but the use of the drug was not so well understood then as now. The urea and quinin hydrochlorid certainly seems worthy of a trial. Dr. Myles said that he did not know how much attention the operators paid to the complaints of their patients after tonsillectomy, but he had known them to make the atmosphere blue for a week, complaining that they could not swallow and that they suffered pain all the time. There is often a great deal of distress, and he was in favor of using moderate solutions of this drug subsequent to the operation if experience proves the claims to be true. He is strongly inclined to do everything possible to prevent the patient from suffering pain both at the time of operation and afterward; and if the urea and quinin hydrochlorid can be used in this way without being followed by edema or sloughing it would be a great help in operations for tonsillectomy.

DR. HURD said that there was no doubt about the use of urea and quinin hydrochlorid as an anesthetic. An interesting theoretical point had been given to him by a Southern physician in relation to the quinin causing acute mania,—at times this can be relieved by morphin. The urea does not produce edema; it is not an exudation of serum but of fibrin, and that was proved soon after its discovery. It was found to be a fibrosis not an edema. Anything above 1 per cent will produce it; 1 per cent does not give a post-operative anesthesia. Four or ten per cent will give a fibrosis and post-operative anesthesia. How much that will interfere with tonsil operations depends on the amount of fibrosis in the pillars. It is an ideal anesthetic to run ahead in extensive operations about the neck, like glands of the neck as one need not be afraid of poisoning.

DR. GUENTZER inquired in regard to the quantity of solution used and the method of operation, and also whether during the period of convalescence there were any ear-symptoms.

DR. HERZIG said that he had never noticed any ear-symptoms. He uses the urea and quinin mixed with boric acid and injects 10 minims of a 4 per cent solution. The reason for the sloughing was brought out by Dr. Hurd. With stronger solutions than 4 per cent one will get sloughing. If a 4 per cent or less be used, there will not be sloughing. He himself has never had a case of sloughing.

In regard to the edema: This never travels downward. The urea and quinin hydrochlorid is actually a hemostatic and it is better than adrenalin. He has never had a post-operative hemorrhage.

. It is the anesthesia of choice in adults. Dr. Herzig said that he never uses it for children. He had given a resume of his experiments with children, but only employs it with grown persons and older children; he also uses it to allay the soreness of which they complain and which often lasts for a week after ether or cocain. Patients do not suffer from soreness with urea and quinin.

The operation which he performs is tonsillectomy, sometimes with the snare, and sometimes with the tonsillotome and punch.

He also uses urea and quinin, four per cent injection with ether, injecting it when the patient is under the influence of the ether. It acts as a hemostatic.

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

Regular Meeting, January 20, 1914.

DR. E. B. GLEASON, *Chairman.*

Tubercular Growth of Septum. DR. E. MATLOCK.

Dr. E. Matlack presented a patient who consulted him on account of nasal obstruction and nose-bleed. He found several pale, tumor-like formations on both sides of the nasal septum, which bled readily on being touched. Microscopically their appearance suggested syphilis or a malignant growth, but a section removed for diagnoatic purposes showed typical tubercular growths. Although symptoms have been present over a year, there has been very little damage to the general health.

SYMPOSIUM ON THE FRONTAL SINUS.

The Normal and Abnormal Frontal Sinus with Demonstration of Specimens. DR. F. M. STROUSE.

Frontal sinuses are never exactly alike in size or shape but often very nearly so. The septum, which may be considered a continuation of the nasal septum, is frequently deflected to one side or to the other and therefore very largely determines the size of the sinus. To outline the normal sinus, draw a curved line from one supra-orbital notch to the other, then a vertical line from the superior function of nasal bones to the top of the curved line. The frontal sinus is pyramidal in shape, base inferiorly located; has anterior, posterior and inferior walls. Anterior wall thicker but less compact than posterior, later separating sinus from frontal lobe. Interior is irregular; mucous membrane is thin and adherent, similar to lining of other accessory cavities, sparsely supplied with lymphatics. Venous anostomosis important on account of surgical pathology, communicating with ophthalmic, nasal, facial and cerebral veins. Normally the sinus communicates with the nose through its ostium into semi-lunar hiatus; frequently, owing to conformation of anterior group of ethmoid cells, an intermediate passage, ductus nasofrontalis, is formed or communication with narea may be by an indirect route through an anterior ethmoid cell. Occasionally the drainage is into the maxillary antrum. In probing the frontal sinus the surgeon must be constantly mindful of its peculiarities. Examination of anomalous specimens here exhibited is a convincing object lesson of the frequency with which this condition is found. Almost every variety of abnormal sinus may be seen here, namely the abnormally small, the very large, those of remarkable inequality, sinus extending high on the vortex or laterally to the superior orbital process of the molar bone and again another extending into the lesser wing of the sphenoid. Again but one sinus is sometimes found, and in such a case there is but one ostium. Frequently we find partial septa and then again we note entire absence of the sinus, size and shape depending on position of septum, intra-nasal pressure and over-reabsorption of bone. Dehiscences may be found in any or all walls including septum. Causes for these defects:—congenital, traumatic, senile and pathological changes.

Bullet Wound of the Frontal Sinus and Brain. Dr. George W. Mackenzie.

Male, age 47 years, was shot in the middle of the forehead at close range with a 32 caliber revolver, September 15, 1913. When seen by the writer a short time after its occurrence the patient was found to be conscious but rather uncommunicative.

Examination showed a rounded, depressed wound about one inch above the root of the nose and slightly to the right of the middle line. Neurologic examination was negative. The skiagraph showed the bullet located in the head about one and one-quarter inches deep. Inner wall of the sinus was splintered and depressed. Temperature 101.2°, pulse 88, respirations 26.

Operation: Under ether narcosis; horizontal incision, about 2½ inches long from the crest of one brow to the crest of the other through the soft parts and periosteum to the bone. A second incision extending from a point about the middle of the first incision, vertically upward, about 1½ inches long, making two right-angled flaps. Elevation of periosteum and soft tissue which exposed the wound and the bone about the wound for an area of 6 sq. cm. Close inspection of the wound showed a punched-out hole resembling a small trephined opening into which one could introduce the tip of the small finger. In the depths of the wound could be seen a disc-shaped fragment of loose bone. The external opening was enlarged with bone-cutting forceps to about the size of a quarter of a dollar. It was then attempted to remove the disc of bone, but without success, because its diameter exceeded that of the opening. The wound was still further enlarged to about the size of half a dollar, when the disc-shaped bone was removed without difficulty. Examination of this fragment showed that which corresponded to the external surface was about the size of a dime but the internal surface was beveled in such a way that it was equal in size to a quarter. Behind this fragment of bone could be seen the black, somewhat shiny appearing bullet which was at a lower level than the fragment of bone, somewhat nearer the ostium of the frontal sinus. (At about this time air bubbles and blood-tinged mucous were noticed coming up from the nose.) Several small, splintered fragments of bullet and bone were removed, after which the bullet mass was grasped and removed with but little difficulty. The side presenting inward was flattened considerably (mushroomed). The inner wall of the frontal sinus was found to be fractured and splinters presented inward towards the brain. Two, half-inch, long spicules of bone had penetrated the dura and were buried about half an inch in the brain substance. These were removed with a very slight loss of brain substance, if any. Wet iodoform gauze packed in the wound. Superficial dressing of plain gauze and bandage.

Recovery was uneventful, patient discharged November 23, 1913, with small depressed scar.

(To be continued.)

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to The Laryngoscope.)

CORRECTIVE RHINOPLASTY.*

Dr. Lee Cohen, Baltimore.

Where the nose has been partially or completely destroyed by disease or trauma, the individual so disfigured is for the most part an object of pity and sympathy, but at the same time he is not accorded those privileges in the social and commercial world enjoyed by other persons. For hundreds of years past, therefore, since the appearance of Tagliacozzi's work in 1597, rhinoplasty for the relief of such conditions has been an accepted surgical procedure.

For some reason, however, corrective rhinoplasty has not received the attention which it merits. By corrective rhinoplasty is meant those operations which have for their object the restoration to a presentable form, size and position noses which, from accidents or congenital causes, are so deformed as to give to the individual an unsightly appearance. Rhinologists in general have shown but little inclination to develop this line of surgery, although the feasibility and advisability of the work have been proved by the excellent results obtained by Roe, Joseph, Berens and others for a number of years past. This indifference may be due to the fact that there has been absolutely no systematic treatise on this work until the appearance of Joseph's article in the German Handbuch about a year ago. An operator, however clever, might lack sufficient originality to develop a proper technic along these lines in the absence of such literature. Then also, there still exists a feeling among many, that so long as some sort of nose is present we are not justified in tampering with the work of providence.

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*Candidate's thesis presented at the twentieth annual meeting of the American Laryngological, Rhinological and Otological Society, Atlantic City, June 20, 1914.

A general belief prevails that persons so disfigured are prompted only by vanity to seek relief, but men who have done most in this field have cited many instances which abundantly show that such patients are so frequently objects of comment and ridicule that they become keenly self-conscious, and a physical depression is brought about, amounting in many instances to melancholia. Joseph cites cases of actual attempt at suicide owing to this depressing effect upon the nervous system.

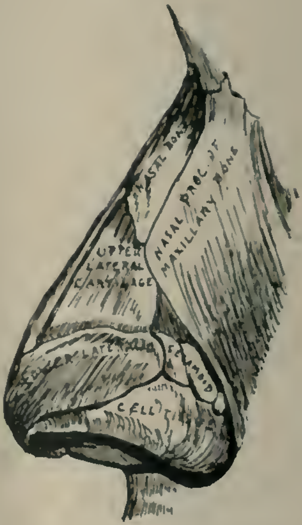

Figure 1. Framework of nose (Gray).

The interest of the writer was first attracted to this subject about four years ago when two patients applied for relief from such conditions. One, a young woman, 22 years of age, had a horribly flattened and laterally displaced nose, following a badly managed fracture sustained by falling down stairs. This girl's face, otherwise quite pretty, was very much marred by the deformed nose—her disfigurement was most noticeable, and she was, consequently, in a continually depressed state.

The second case was that of a young man with a congenitally over-sized nose. So enormous was this man's nose that he was constantly reminded of it by comments of persons with whom he had to come in contact. Further, he felt that any advancement with the concern that employed him was actually hampered by his appearance. He also brooded much over his condition, and expressed a willingness to spend all of his small savings if he could but be freed from such disfigurement.

The mental condition of these two individuals at this time made so profound an impression upon me that I was led to take up this work seriously, and at once began to search literature for light on the subject and to work it up in the dead-house and clinic.

Text-books on general surgery furnished no information since they detailed only methods where skin incisions were employed. Even as late as 1911, Kolle's books on "Plastic surgery" makes but casual mention of any other procedure. Books on rhinology have had so little to say on the subject that but slight assistance could be obtained from them. A number of interesting monographs have been written in this country and abroad since 1887 (when Roe's first publication appeared), from which much can be learned, but they are, with few exceptions, mostly made up of case-reports, with pictures of subjects before and after operation, leaving much o the reader's imagination as to finer details of technic, so important for a successful outcome in these operations.

Figure [illegible]. Bones and cartilage of septum, left side (Gray).

An endeavor will here be made to describe more fully details of echnic which have yielded best results in the work thus far done y the writer, in the hope that the little he has learned may interst others in the work, so that it may be given the standing in surery which seems its due. This might also help to do away with he so-called "beauty specialist" who flourishes in many of our larger cities at the expense of those who should, as a matter of fact, be cared for by the skilled rhinologist. For only the rhinologist is capable of relieving the impaired nasal breathing so frequently existing along with the external deformity.

Classification: The deformities here under consideration are divided into two classes: (1) idiopathic or congenital; (2) acquired. To the former belong the over-developed nose, hump-nose, congenital saddle and pug nose, while to the latter belong all sorts of grotesque alterations in shape and position of the nose caused by fracture or dislocation, and likewise by destruction of the bony or cartilaginous framework from syphillis, tuberculosis and lupus.

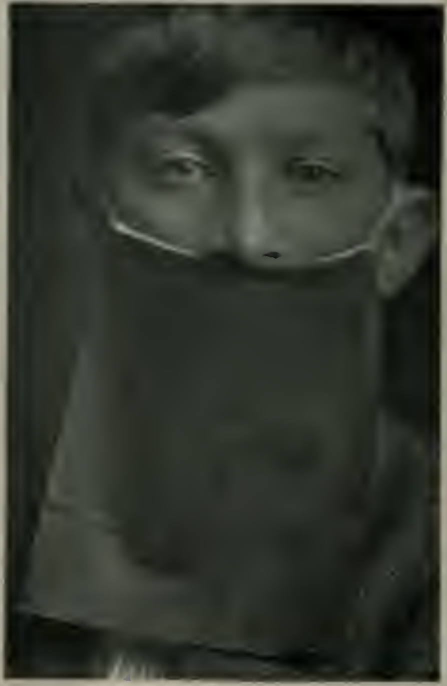

Figure 3. Rubber apron used by writer.

For practical purposes, a further subdivision is generally made into deformities affecting the bony and those affecting the cartilaginous portions, although both are frequently involved at the same time. The various types of deformity have been admirably described by Roe, whose classification seems the most comprehensive.

Anatomical: Reference to Figures 1 and 2 reminds us of the normal relationship of the various parts making up the framework of the nose, and the part played by the nasal septum in the support of the lower cartilaginous portion. It is well to bear in mind that the anterior edge of the triangular cartilage can be felt directly under the skin, and also that the fleshy tip of the nose is quite mobile, owing to the existence of the membranous septum between it and the lower edge of the triangular cartilage. The existence of this membranous septum makes alteration in the position of the nasal tip a comparatively simple matter.

Preparation of operative field: To guard against any possible infection, great care should be exercised in preparing the interior and exterior of the nose prior to operation.

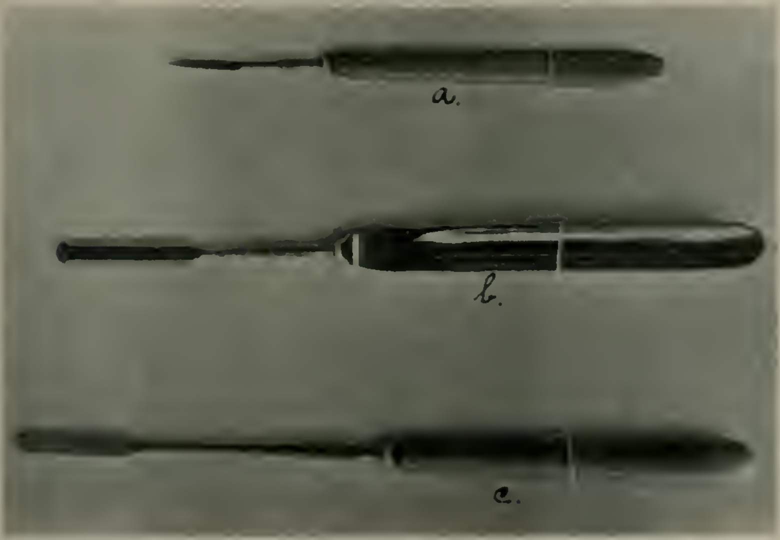

Figure 4 (a) Small pointed knife. (b) Writer's periosteal elevator, end and sides sharp. (c) Writer's file.

After thoroughly douching with a sterile saline solution, the hair is closely cut from within the vestibule of the nose with a pair of long-pointed surgical scissors, and the parts thoroughly washed with pledgets of cotton soaked in 1-2000 bichlorid of mercury solution, followed by 95 per cent alcohol. The entire face is now washed with soap and water, alcohol and ether. Further, to prevent infection when operating in the sitting position, the mouth is covered with a sterile apron made of dental rubber dam. (Figure 3.) This apron also serves to keep blood from running into the mouth of the patient. When operating in the recumbent posture, the mouth is covered with gauze, as the rubber apron would obstruct breathing.

In order that mucus from within the nose may not cause infection, we always enforce mouth-breathing by means of a naso-pharyngeal tampon if operating under general anesthesia, or by packing the rear end of both nasal cavities if the patient is in a sitting position, under local anesthesia. Need for this precaution is far greater when operating under ether, which, as a rule, stimulates an excessive flow of mucus and this might be carried into the wound during nasal respiration. Besides, the posterior tampon prevents blood from flowing back into the throat to be aspirated by the patient.

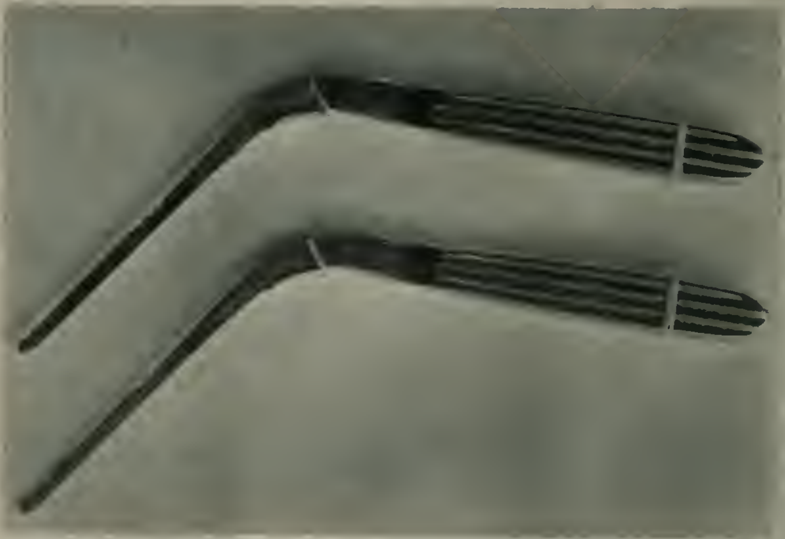

Figure 5. Nasal saws of Coakley, right and left. Part of teeth removed. Blade 1⅜ inches long.

Anesthetic: While in cases of lateral deformity, in which Berens' method of mobilization is employed, ether is administered, in all instances where subcutaneous methods have been followed we have found local anesthesia sufficient, even in subjects as young as 13 years. A preliminary dose of morphia, according to the age of the patient is given hypodermically. The nasal vestibule is cocainized with a 10 per cent solution of cocain, after which the subcutaneous tissue over the entire nose is infiltrated with a one-quarter per cent solution of cocain in 1-15000 adrenalin chlorid. This is best injected with a regular hypodermic syringe, using a special needle 1 to 1½ inches long, according to size of the nose. The needle is inserted from within the vestibule, under the skin, which of course is not to be perforated.

Incision: In all methods of correcting these deformities, the main object should be to avoid marring the subsequent appearance of the nose by scar, or in other words to work entirely from within. For these subcutaneous operations, then, incision, as first advocated by Roe, should be made within the vestibule of the nose, generally above the lower lateral cartilage of the left side, and subsequently if necessary on the right side, cutting through the mucous membrane and the cartilage to the under-surface of the skin. Whether this incision is made close to the septum or more laterally, depends on whether we wish to alter the line of the nasal dorsum only, or whether the nasal processes are to be severed from their attachment to the superior maxillary. It is surprising with what ease one can, with a very small straight knife (Figure 4a), undermine the skin over the entire nose through a small incision on one side, owing of course to the flexibility of the cartilaginous portion. By following the course of the knife under the skin with the index-finger on the outside, it is not difficult to avoid injury to the skin.

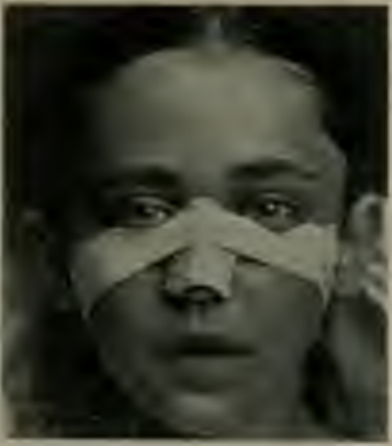

Figure 6. Copper saddle in place after operation.

Hemorrhage during this process is not great or annoying, unless one should injure the angular branch of the facial in its course up the side of the nose, embedded in the fibers of the levator labii superioris alaequa nasi muscle. Injury to this vessel may be avoided by working close to the skin while undermining, in this way leaving the muscle attached to the framework of the nose.

In correcting the cartilaginous portion, incision must be made lower down and will be referred to later.

The skin having been undermined, one proceeds with the subsequent steps of the operation, working under the skin as if it were a tent and guiding the movements of the various instruments with the left hand over the outside of the nose.

Hump nose: This is the simplest of these operations. The hump is usually situated at the junction of the osseous and cartilaginous portion of the dorsum nasi. It may be of congenital origin due to overdevelopment of the nose in this situation, or may be acquired through fracture of one or both bones. In consequence of fracture, the hump may be situated in the middle line or to one side, according to whether both bones were fractured or only one. In this instance also, the hump is generally sharp and the skin over it very sensitive. For removal of hump the skin should be undermined only so far as to permit of freedom in the use of instruments beneath it.

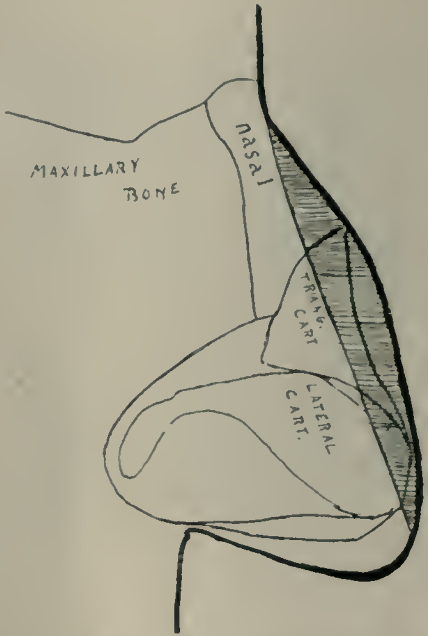

Figure 7. (Schematic.) Dark portion indicating amount of dorsum nasi removed in lowering plane. (Joseph.)

The periosteum over the hump is pushed aside with a small periosteal elevator (Figure 4b). The hump is then sawed off with a short saw (Figure 5), and removed through the incision. A small file (Figure 4c), made for this purpose, is then used to make the surface round and smooth, and the skin is now placed back and held against the bone by means of a saddle of thin sheet copper, patterned to suit the shape and size of each nose. This saddle first used by Roe in recent fractures is covered with adhesive plaster which not only keeps the copper from direct contact with the tissues but also prevents the edges from cutting into the skin. A one-inch strip of adhesive plaster passing over the saddle and terminating under each ear holds it in place (Figure 6). While the saddle must be snugly fitted and held to the nose, care must be exercised lest the pressure be so great as to interfere with the proper blood-supply of the skin. I might say, before placing the saddle over the nose, the vestibule is loosely packed with iodoform tape, and that sutures are not necessary in this operation.

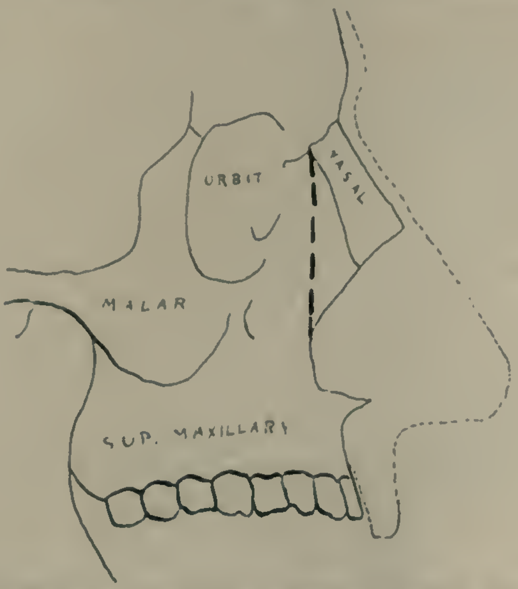

Figure 8. (Schematic.) Dark line indicating direction of saw in severing nasal process to narrow base. (Joseph.)

There are many advantages of the copper saddle over any other means of retention in all of these subcutaneous operations. First, owing to its flexibility, it can be bent to any desired shape, and the operator is able to make greater or less pressure at any required point along the side of the nose. Secondly, by encasing the nose in such a splint, the extreme swelling which otherwise must follow is prevented without the least danger of constriction. Thirdly, the skin is held down so evenly by it that an accumulation of secretion beneath is impossible. Then also, in working with this soft sheet copper, any ordinary pair of scissors may be used.

In these cases the dressing is changed every forty-eight hours, the interior of the nose douched, and, to prevent maceration, the skin well bathed with alcohol. The saddle should be worn continuously for ten days, after which time, owing to a tendency of the skin to swell, the patient is required to replace the saddle at night for a few weeks longer, but now holding it in place with garter elastic instead of the adhesive plaster.

Reduction of over-sized nose: The over-sized nose, usually of congenital origin, may be simply an exaggerated hump involving the dorsum of practically the entire nose, or the nose may at the same time be too wide at the base as well as too long, therefore requiring reduction in all directions. It is necessary in this operation to undermine the skin more extensively than in the simple removal of a hump. It must be undermined from the frontal eminence to the tip of the nose, going well down over the nasal processes of the superior maxillary, if the nose is to be narrowed at its base. It is rarely necessary, however, to undermine the skin over the lobule or extreme fleshy tip, nor is it well to routinely undermine over the

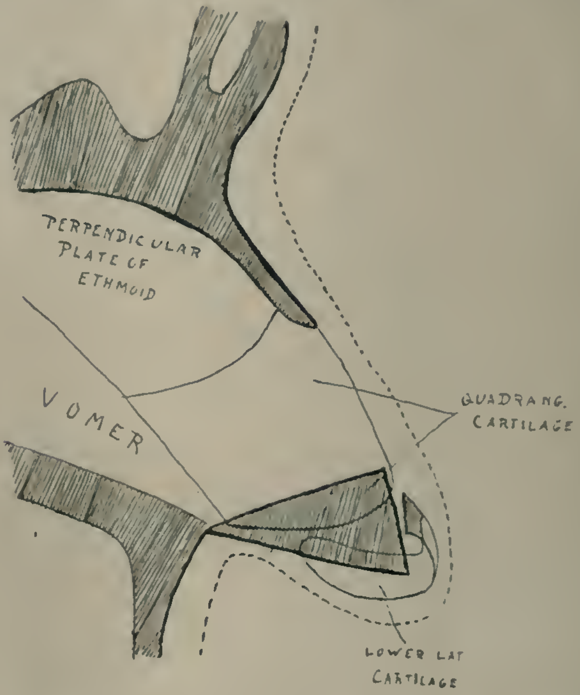

Figure 9. (Schematic.) Triangle removed from lower border of septal cartilage in shortening nose. (Joseph.)

furrows of the nasal alae, as an effacement of these furrows is likely to result, making the profile of the nose appear too flat.

In reducing the height of the nose, the method first suggested by Joseph has been followed. After undermining, we saw through the nasal bones from above downward, beginning at the frontal notch, and remove as much of the bony dorsum as required. The cartilaginous portion is pared off with the knife in the same way (Figure 7), and all tissue thus detached is removed through the incision. The file is here also used to smooth and round off the surface. In sawing dorsum of the nose, Roe advises against creating an opening into the nasal chambers, whereas Joseph enters with the saw in nearly all cases. I have not yet seen any infection follow from making such an opening.

After thus lowering the dorsum, the length and width of the nose often appear even more accentuated, and the lobule too prominent. To reduce the width of the nose at the base, both nasal processes are sawed through at their junction with the bodies of the superior maxillary bones (Figure 8), first separating the periosteum with elevator. Now by making firm pressure with the thumb and index finger, the lower edges may be made to approach the middle line of the nose and the nasal bones fractured at their junction with the frontal. Sometimes, however, to sufficiently mobilize the nasal processes and nasal bones, it is necessary to grasp the bones with forceps, one blade of which is introduced through the incision and the other into the vestibule of the nose.

Should lowering the dorsum cause the top of the nose to appear too broad and flat, this may be overcome by tilting the upper edges of the nasal bones toward the middle line.

Shortening the entire nose, if too long, may be accomplished in the following manner: A triangular piece should be removed horizontally from the lower border of the cartilaginous septum, including a portion of the membranous septum below. The base of this triangle, 3 to 5 mm. in width, should be situated forward directly under the tip of the nose, and the apex at the interior nasal spine (Figure 9). Any small straight knife may be used to transfix the septum for this purpose. After removing the triangular piece, including the mucous membrane on both sides, the tip and columna are sutured to the newly made lower border of the triangular cartilage, thus shortening the septum and raising the tip. It may also be necessary to shorten the lateral walls of the nose by removing horizontally from the inside of each, just above the lower lateral cartilage, a triangular strip including mucous membrane and cartilage. In closing the wounds thus made with two or three sutures of black silk, the lateral walls are shortened in proportion to the size of the strips removed.

If the cartilaginous portion of the nose is too broad it may be due to a bulging of the alae nasi, which at the same time causes the anterior nasal orifices to appear too large. In several such cases the writer has obtained excellent results by removing a vertical strip from each lower lateral cartilage near the septum, as suggested by Joseph. These strips, 3 to 5 mm. in width, should include everything but the outer skin. To excise these strips, an incision should be made 2 mm. above and parallel with the skin margin just within each ala nasi. Through these incisions the skin over the alae is elevated, and with a pair of long-pointed surgical scissors the strips are removed. Suturing of these wounds, which is accomplished with the Yankauer or a small curved surgical needle reduces the breadth of the nose and lowers the tip, at the same time making the opening smaller.

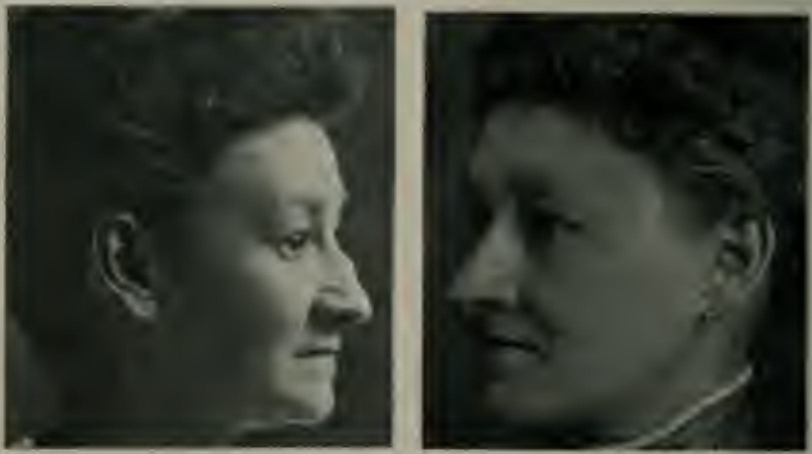

Figure 10. Case 1.
Before operation. After operation.

Where the tip of the nose is simply too high, as frequently happens, in the absence of any other deformity, the method of Charles C. Miller for changing the position of the tip will be found simple and effective. This operation consists in transfixing the membranous septum where it joins the triangular cartilage, and in severing the attachment of the entire tip therefrom. Then with several sutures properly placed, the tip may be sewed to the septum in a new position lower down.

Management in these cases after-operation is very similar to that mentioned in the after-care of hump nose, that is, the vestibule is packed with iodoform tape and the saddle splint applied. After reducing the size of the nose, the redundant skin should be smoothly held to the dorsum and sides of the nose. This apparent excess of skin soon shrinks and adapts itself to the change in size and position of the nose. The copper saddle is not removed from the nose for four days following operation; thus allowing sufficient time for some union to take place. The vestibule is irrigated with normal salt solution and repacked with iodoform tape, after which the saddle is replaced. Subsequently the dressings are changed every forty-eight hours. Patient is required to wear the splint continuously for three to five weeks, and at night for several weeks longer.

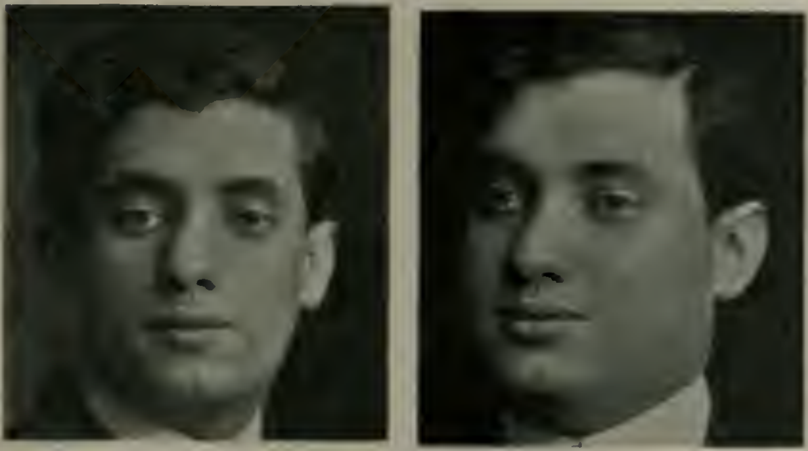

Figure 11. Case 2.

Before operation

After operation.

Where the width of the nose has been reduced at its base, to compress the mobilized nasal processes and prevent them from assuming the old position, several layers of adhesive strips one-quarter inch wide are stuck to the skin along the base of the nose on each side, so that when the copper saddle is placed, firm pressure may be made by the lower portion of the saddle, without injury to the skin.

After shortening the nose, to prevent tension on the stitches, the tip of the nose is supported by a sling made of one-quarter inch strip of adhesive plaster, which passes beneath the tip and is stuck to the skin on each side of the nose near the dorsum.

Local reaction the day after operation may at times be very intense, the lower eyelids being greatly discolored and often so swollen that the eyes cannot be opened. This need cause no alarm, as these local changes quickly subside, leaving scarcely a trace at the end of a week. The general reaction in all cases observed has been too slight to merit consideration.

Lateral deformities: This type of deformity is one for which most frequently relief is sought. It is characterized by a displacement of the nose to one side of the middle line of the face; thus producing a most unsightly appearance. The entire nose is at times bent toward one side. In other instances the bony portion is bent toward one side, while the tip curves in the opposite direction; thus causing the nose to appear twisted. Such a nose presents a very curved dorsal outline, and is usually associated with a marked septal deflection which obstructs nasal breathing. Again a hump or prominence is not uncommon on one side of the nose at the lower end of the nasal bone, making the nose appear very large and broad at this point. In all cases where the entire nose is deflected there is considerable difference in the breadth of the two sides, the side to which the nose is bent being much narrower than the other.

While over-development of the framework on one side of the nose may account for some of these deformities, the vast majority are the results of old unreduced fractures and dislocations.

A satisfactory cosmetic effect in these operations depends upon the free mobilization of the entire bony and cartilaginous framework, the proper placing of the nose in the middle line of the face and its retention there with some suitable apparatus.

It is generally conceded that nasal breathing should be restored by correcting any existing septal deviation before attempting to operate for the external deformity. Berens corrects both with one operation. Roe and Joseph recommend a preliminary submucous resection in many cases. The writer has not been able to obtain satisfactory results, as far as the septum is concerned, with the Berens method, and is also convinced that a classical submucous resection is not advisable where there is a very marked deflection of the triangular cartilage, for the reason that the removal of a necessary amount of this cartilage often too greatly weakens the support of the nasal tip. Therefore, after undermining the mucous membrane of the septum on both sides, as is done for the regular window resection, I remove only sufficient cartilage from the extreme summit of the deflection to permit an approximation of the edges of the gap so made, after the septum is straightened. The resiliency of the bent cartilage is further overcome by incisions through it, so placed that when the cartilage is straighened there is no tendency to resume its old curved position.

Any curved condition in the perpendicular plate of the ethmoid may be overcome by cutting partly through it with the Struychen scissors and forcing it toward the middle line with the periosteal elevator. Should the vomer below then be out of alignment, by severing its attachment to the floor of the nose with hammer and chisel, it also can be forced into the middle line. The mucous membrane is now replaced over both sides of the septum, the incision sutured, and both nasal fossae packed in the regular way for forty-eight hours. By this procedure we have been able to obtain a perfectly straight septum, and have found, moreover, that the support of the tip was firmer afterward than before operating.

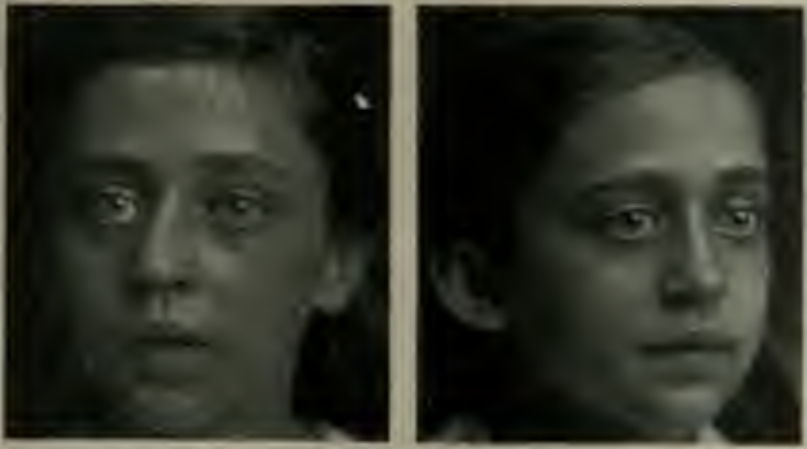

Figure 12. Case 3.

Before operation. After operation.

After allowing three or four weeks for healing of the septum, we have proceeded in most cases very much after the method of Berens: Under ether anesthesia, a posterior nasal tampon is introduced, and with the Adams forceps, one blade of which is covered with rubber to protect the skin on the outside of the nose and the other blade introduced within the vestibule of the nose, the nasal bones are grasped, first one and then the other, and fractured at their articulation with each other and with the frontal bone. With these same forceps, minus the rubber covering on the blade, one blade in each nostril, the nasal spine of the frontal is mobilized and the perpendicular plate of the ethmoid fractured freely just back of the nasal spine. The nasal processes are then separated at their attachment from the body of the superior maxillary bones, with hammer and an ordinary Hajek chisel. Should there still exist any projection or hump on the side of the nose, by placing a chisel handle covered with rubber tubing against it and giving it a smart tap with the hammer, mobilization may be completed.

So much force is at times required in fracturing these bones that, observing the operation, one might suppose the nose was being torn from the face. yet it is indeed surprising to note how trifling is the reaction following. Once sufficiently mobilized, the nose may readily be placed in the middle line and moulded into proper shape, using for the purpose a small dull elevator on the inside and the thumb and index-finger on the outside. The vestibule is then lightly packed with iodoform tape, and the copper saddle placed over the nose. By making tension of the adhesive strip holding the saddle a bit greater on one side than on the other, it is easy to over-correct the displacement somewhat, and this is always advisable.

The saddle is worn continuously for about three weeks, and afterwards at night for a couple of weeks longer. Should the cartilaginous portion of the nose, after healing, appear too broad, the subcutaneous method already indicated may be used to perfect the symmetry four of five weeks later.

Roe and Joseph make use of the saw instead of the hammer and chisel in separating the nasal processes from the superior maxillary, and Joseph, in a number of cases, has found it necessary to resect a strip from the nasal process, on the broad side of the nose so deformed, in order that there may not remain too great an amount of bone on this side to interfere with the retention of the nose in the middle line of the face.

Regarding operation for the correction of deformities known as *saddle* and *pug nose,* the writer is yet unable to furnish any complete report of work done by him, but hopes to do so in the near future in another paper on this subject. We are, however, familiar with reports of Carter, Henle, Roe, Joseph and others, which indicate beyond doubt that cosmetic results obtained in such cases are no less striking or no more impossible than in the class of deformities here referred to.

So far twenty-two deformities of the external nose have been corrected by the writer, with more or less satisfactory results. Of this number I mention here but five cases, and present photographs showing the appearance in each case before and after operation.

Case 1: Mrs. D., age 33; sharp circumscribed hump about middle of dorsum nasi, in consequence of fracture of both nasal bones sustained while coasting when a young girl. Skin over hump exceedingly sensitive and often inflamed. Patient fearful of the sharp edge cutting through skin.

October 21, 1912, hump removed subcutaneously, under local anesthesia. Saddle worn continuously for ten days, at night for two weeks longer. Pictures showing result taken eight weeks after operation.

Case 2: H. M., male, age 19. Patient poorly nourished and anemic. Right nostril almost completely occluded by deflected septum. Externally the bony portion of the nose inclined markedly to the right, the cartilaginous portion bending to the left. December 10, 1910, nasal obstruction removed by modified submucous operation, which at the same time corrected considerably the curve of the cartilaginous portion.

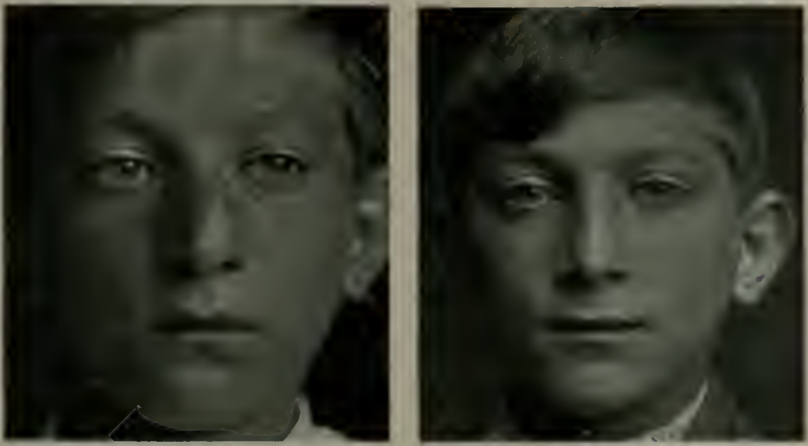

Figure 13. Case 4. Front view.
Before operation After operation.

January 7, 1911, under ether anesthesia, lateral deviation of the bony portion corrected, placing the nose in middle line of face. Three weeks later, under cocain anesthesia, a small strip was removed from each lower lateral cartilage to reduce bulging of the nasal alae.

Picture showing results taken six months after operation, during which time patient gained 20 pounds in weight

Case 3: I. P., female, age 13. Complained of difficult nasal breathing due to deflected septum and hypertrophied lower turbinates, along with external deformity of the nose. The parents were more concerned, however, about the outer deformity than the obstructed breathing.

July 15, 1913: Attempt was made, under ether anesthesia, to correct the deviated septum and the external deformity at the same time. Result so far as the outside deformity was concerned, was most satisfactory. The septal deflection, though apparently overcome at the time of operation, in a few weeks showed almost as great a bend as before correction.

On August 26, under cocain, a modified submucous resection was performed, both lower turbinates being resected at the same time.

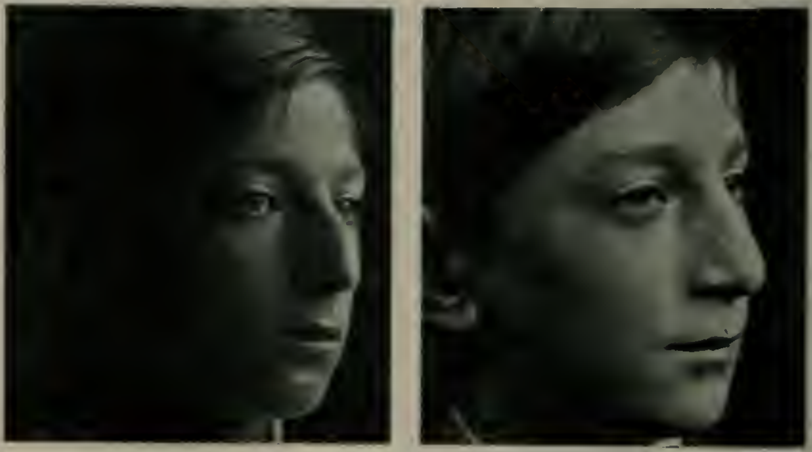

Figure 14. Case 4. Profile of nose.
Before operation. After operation.

Three days later a paracentesis was necessary, owing to an abscess in left ear. This subsided in a week, without further complication. From results in this case, as well as from similar experiences in other cases so operated upon previously, we conclude that in any case it is best to first rid the patient of internal obstruction. Picture showing result taken three months after correction of external deformity.

Case 4: H. H., male, age 13 years. Lateral deformity of bony portion to left, with hump on dorsum and very prominent cartilaginous portion of the nose, following injury six years before. Photographs of the front view and profile of nose show the lateral deformity as well as the hump.

June 29, 1913: Submucous operation performed under cocain.

July 23, 1913: Under ether anesthesia, lateral deformity corrected and nose placed in middle line of face, leaving the hump for correction later.

September 29, 1913: Under cocain, the bony hump was removed with saw and file, and the plane of the cartilaginous portion lowered with the knife, giving results as shown in the two photographs taken six weeks after operation. Since the last photographs were taken, there has been a still further improvement in the appearance of nose, swelling having subsided almost entirely.

Case 5: C. R., male, age 19. Considerably oversized nose, still further deformed through having been struck on the left side of nose by the end of a piece of falling timber two years ago. When first seen patient showed a long adherent scar extending from the inner canthus of the eye up the left side of the nose, beyond the middle line of the dorsum. This can be plainly seen on photograph.

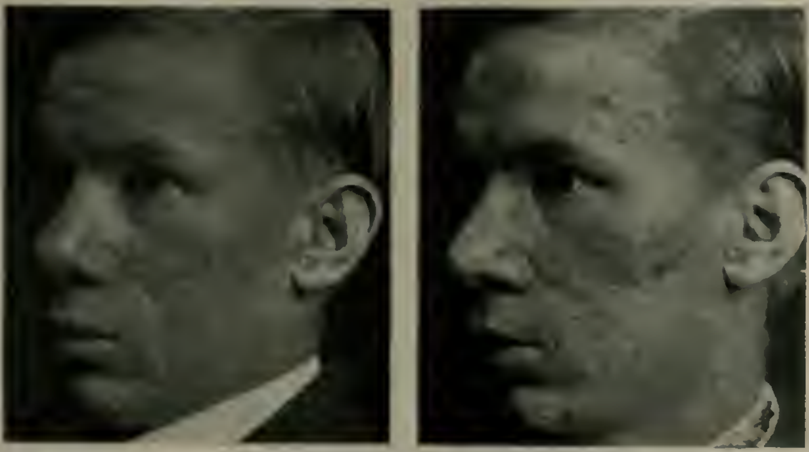

Figure 15. Case 5.

Before operation. After operation.

In addition, the lower edge of the left nasal bone had been driven inward, resulting in a marked depression below it. The upper edge was turned outward, standing as a sharp ledge under the skin near the dorsum which appeared very broad and flat. The cartilaginous portion stood out very prominently and the tip was unusually large.

September 22, 1913: Under local anesthesia, the sharp ledge on the left side of nose was sawed off subcutaneously and turned down into the depression below. The attachment of the nasal processes to the superior maxillary were sawed through and the nasal bones mobilized, so that by compressing them the base of the nose was narrowed. At the same time a 4 mm. strip of cartilage and mucous membrane were removed from the cartilaginous portion of the nose near the septum. These strips included portions of the lower lateral cartilages, and tapered to a point about one-half cm. above these, so that the entire cartilaginous portion was narrowed and the bulging tip reduced. Edges of the wounds within the vestibule of the nose were drawn together with three silk sutures, and after packing the nose, saddle applied.

Saddle was worn continuously until October 18, when patient returned to home in West Virginia with instruction to wear the saddle each night for three or four weeks longer.

Picture showing result was taken October 18, not quite one month after operation.

In this case not only was the bony deformity in consequence of the fracture corrected, but the entire nose was reduced in size, and the conspicuous scar could hardly be seen at all after being detached from the bone to which it was adherent.

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New Contribution to the Study of Chronic Lacunar Tonsillitis.

G. Royet. *Revue hebd. de Laryngol.*, Feb. 28, 1914.

Royet calls attention to certain patients who complain of an irregular and apparently incurable discomfort of the throat which may be felt in the act of swallowing food or even of the saliva only. The tonsil in such cases may appear normal or even atrophied, but a careful examination shows a chronic inflammation of the crypt of the tonsil, usually accompanied by retention of its secretion. In the cases enumerated, a cure was obtained by ablation of the lobe of the tonsil involved, followed by the application of a strong solution of chlorid of zinc.

Scheppegrell.

HISTO-PATHOLOGY OF THE FAUCIAL TONSIL.

DR. T. E. CARMODY, Denver.

Of the lymphatic structures of the body which undergo pathological change the faucial tonsil is probably the most frequently affected, next the vermiform appendix, and third the pharyngeal tonsil.

The relation of the lymphoid structures in the upper respiratory tract is better understood if we first note their development. The order of development and retrogression of the lymphatic structures is pharyngeal tonsil, faucial tonsil, lingual tonsil and laryngeal tonsil.

The pharyngeal, which is found in the lower form of life as in reptiles and birds, makes its appearance in man probably about the fifth or sixth week of fetal life. G. Killian has shown this tonsil to be associated in the development with the vestigial space known as the bursa pharyngea embryonalis.

The origin of this bursa is not known, but Linck states that in its pure form it belongs entirely to the embryonic life; it is also posterior and independent of Rathke's pouch, and Patterson warns especially against confusing it with the bursa pharyngea of Schwabach, which is simply a space in the center of the pharyngeal tonsil, produced chiefly by pathological changes, and frequently persisting into adult life. The pharyngeal tonsil probably has very little, if any, function after the first year of extra-uterine life.

The faucial or palatal tonsil appears in the fetus somewhat later, probably about the seventh or eighth week or possibly even earlier. It is developed from the second gill cleft. In embryos of four or five months the shallow pouch which represents this cleft is found bounded in part by the arcus palato-glossus which is a survival of the second branchial arch. It is partly covered by the uvula, and is continued on to the wall of the pharynx as a fold, the plica triangularis of His. This forms the dorsal boundary of the pouch. The pouch is lined with mucous membrane continuous with that of the pharynx.

About the third month, according to Stohr, the tonsil is composed of stratified epithelium resting on the mesenchyne without leucocytes; at about the fourth month (McMurrich) solid buds begin to grow from the epithelium into the subjacent mesenchyne and depressions appear on the surface of this region. Later the buds become hollow by a contraction and cornification of their

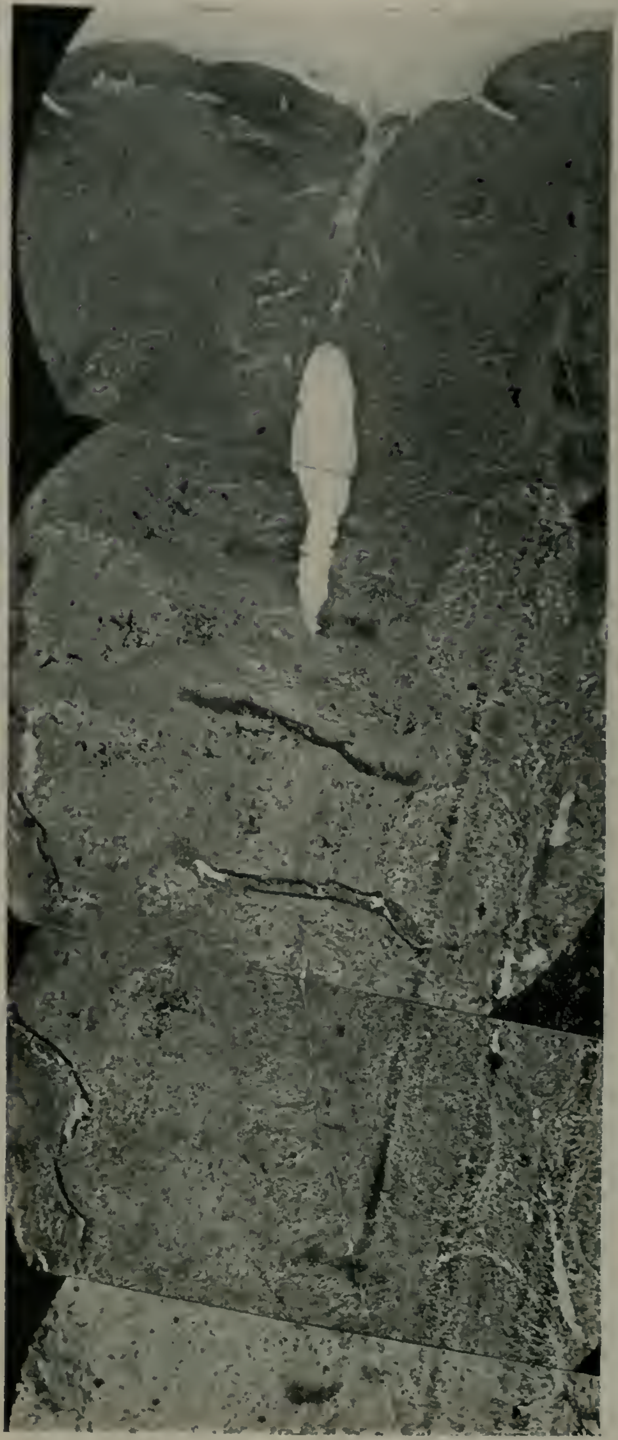

Figure 1. Crypt with plug protruding, also dilated space below surface with absence of epithelium. Remainder of crypt normal except lack of epithelium in places.

central cells. These spaces later communicate with the depressions to form the crypts.

During this period the lymphocytes collected in the mesenchyne congregate in small numbers to form the lymph follicles. Whether the lymphocytes are derived from the epithelium or from the blood vessels is as yet a disputed point.

Although the tonsil may, because of the pathological conditions, completely fill the fossa it usually leaves a space, the supra-tonsilla fossa above, which represents the remains of the second branchial furrow. Rosenmueller's groove or fossa is also a remains of this furrow.

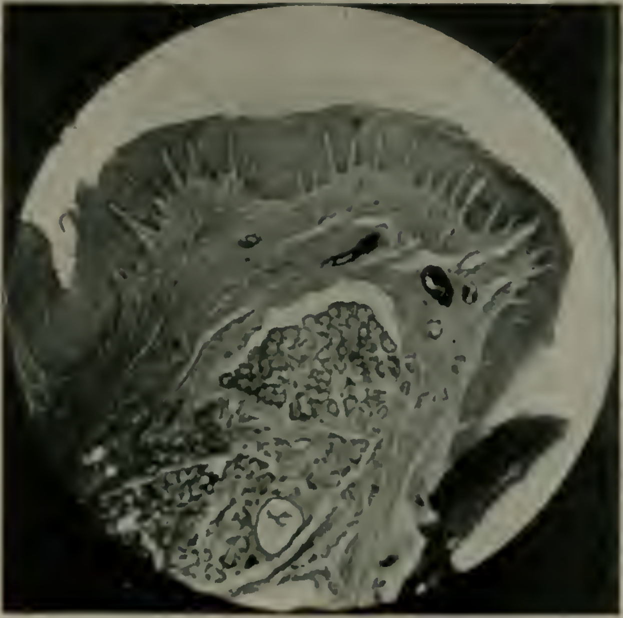

Figure 2. Epithelium with connective tissue columns. Adenoid tissue within connective tissue. From patient, aged 6 years.

The faucial tonsil resembles the lymph glands more closely than any of the other lymphoid tissues in shape and structure, having a capsule although not complete, fibrous trabeculae, adenoid nests and a richly supply of lymph vessels and lymph spaces.

It is so placed that it can be hypertrophied without making pressure upon any bony structure although the mandible is sometimes thrown forward, giving a prognathous appearance, to relieve pressure on the inflamed tissue, especially in acute inflammatory conditions, although it may also be found frequently in chronic.

The pharyngeal, on the other hand, has a bony base and must necessarily hypertrophy downward and forward, while the lingual tonsil hypertrophies upward and backward as it cannot penetrate the fibrous tissue which might be called a capsule overlying the muscular tissue of the base of the tongue.

The faucial tonsil looses its function somewhere between the second and seventh year. The lingual tonsil appears about the fourth month and is developed by the laying down of round cells around mucous glands at the base of the tongue. Later, about the eighth month, these round cells are also found in the connective tissue surrounding these glands. With the lingual tonsil as with the faucial it is a question at what age it ceases to functionate, but probably about the fifteenth year.

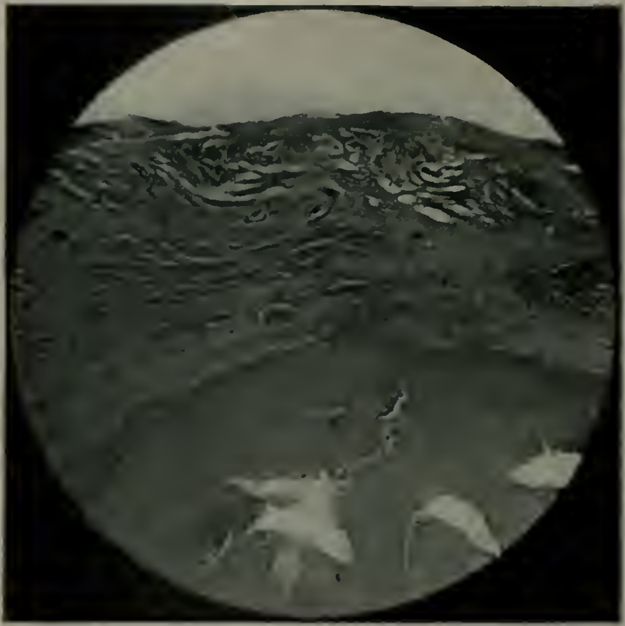

Figure 3. Markedly thickened capsule. Connective tissue has replaced adenoid tissue in this tonsil.

The laryngeal tonsil, as it is sometimes called, is simply the vestigial remains of the air sac found in anthropoid apes, and is known as the appendix of the ventricle of the larynx. It is stated by Citelli that this organ is not found in the human fetus but makes its appearance between the third and fourth years of life. It probably functionates about the thirtieth year, when retrogression takes place, which is not completed until the fiftieth year.

It will be seen by the foregoing that while we have all these lymphoid structures their periods of activity are not coincident but successive or slightly overlapping, and while the pharyngeal is retrogressing and probably also the faucial, the lingual and laryngeal are reaching the height of activity and beginning development respectively.

The faucial tonsil in its primitive form is simply a lymphoid lining of the furrow (fossa tonsillaris) remaining from the second branchial arch; as we pass to the higher forms (rabbit) we find this tissue as a single nodule. It becomes larger and more specialized as we ascend in type—ox, sheep, etc., and we find an attempt to divide into lobes which, according to Hammar, is the normal condition in man during development, although later the septum disappears and the lobes blend. This latter condition he states as representing full development, but it would seem to be a step toward retrogression. These lobes are at times blended only at the base, as the throat surgeon finds in some cases when, on removal of the instrument with enucleated mass, he simply has one lobe, usually the superior.

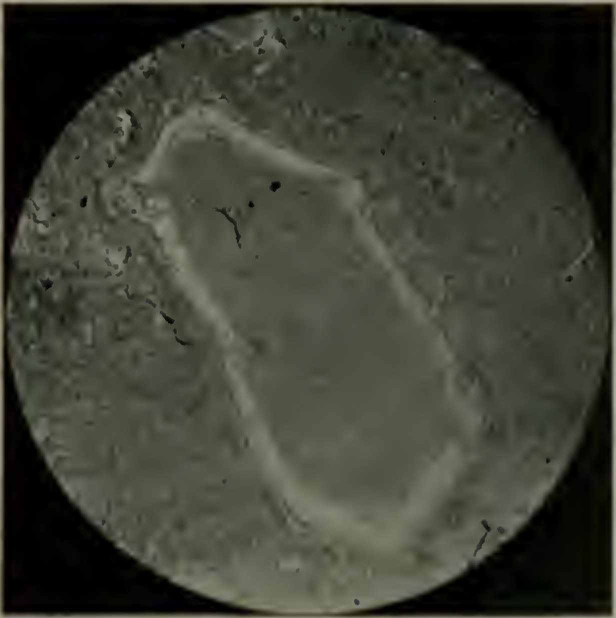

Figure 4. Degenerated area in tonsil. Necrotic tissue abscess.

The superior lobe has attained, according to Patterson, its full growth at birth, while the inferior lobe may increase in size. Thus J. Killian states that a hypertrophied tonsil at the end of the first year is composed entirely of middle and inferior portions. Although this may be true at the end of the first year, as I cannot contradict from experience, it is certainly not true from the third year on as the superior lobe is, in most cases, much larger than the inferior.

The epithelial covering of the tonsil is of the stratified variety, as is that lining the crypts. We have found the lining of the crypts deficient in many cases, and have drawn the conclusion that in breaking through the cornified cells from the center of the developing tonsil to the depressions on the surface, small areas are left which are devoid of epithelium and do not receive the covering. It has been furthermore noted that there are no glands in the tissue underlying these areas. It may be said that the epithelium has been destroyed by infection, pressure of necrotic plug, etc., but the latter at least would not be applicable to the younger cases, as you do not find caseous masses in the tonsils of young children, and only superficial plugs in cases of acute infection.

In adults we frequently find plugs in the crypts composed of leucocytes, epithelium bacteria and disorganized tissue. We may question why these masses are retained in the crypts. The explanation given by most authors is that of closure of the mouth of the crypts and has been treated by slitting the crypt, cauterizing deeply into the crypt so as to obliterate, etc.

This explanation is not sufficient, for many of us have seen these masses protruding from the opening and yet they are not expelled, so, while not denying this, we believe that the lack of mucus to lubricate the crypt walls accounts in a large degree for it, and furthermore that the plug resembling a scab clings to the tissue devoid of an epithelial covering as it does in the nose, on the skin and elsewhere when it is not brushed off. (Figure 1.)

We must not forget that hypertrophy of the muscular tissue in the pillars and overlying the crypt openings may prevent the plug being expelled from even a normal crypt.

It is well known that this plugged condition of the superior crypt of the tonsil opening into the supra-tonsillar fossa is a great source of trouble, and the cause of probably 95 per cent to 98 per cent of all peritonsillar abscesses. The drainage of the crypts in the inferior lobe and the most inferior of those in the superior is favored by gravity and negative pressure during the act of swallowing.

We have also known for some time that removal of the upper lobe is sufficient to allow the remainder of the tonsil to return to normal in the great majority of cases. We furthermore have observed and have recently had our attention called by Sluder to the fact that the adenoid tissue from the lingual tonsil migrates into the fossa tonsillaris after complete removal.

As regards the effect of pathological conditions of the tonsil upon the general health it is easily understood after examination of a number of diseased organs, and considering the drainage of the lymph vessels of the tonsil and those of the base of the tongue which drain the lingual tonsil into the superior deep cervical chain of glands.

Although our investigations have just commenced we have noted a number of changes in the tonsil, its capsule, etc., most of which have been found by other observers. Thus far only thirty-five pairs of tonsils have been completely examined, although we had expected to have a very much larger number to report at this time. The ages of the patients vary from 2½ to 28 years. The majority of the tonsils were removed by the modified Sluder method,[8] although several were removed with the knife and snare: most of them had not been operated before; three, however, had had tonsillotomy performed.

They were removed for various reasons: First, repeated attacks of follicular tonsillitis with glandular enlargement being most common; next, rheumatism associated with attacks of tonsillitis, endocarditis, and, in one case, anemia, the cause of which seemed to be diseased faucial and pharyngeal tonsils.

On examination we found destruction of the epithelium upon the surface and in the crypts. In the cases which had previously had tonsillotomy performed it was found that there had been no regeneration.

The older the patient the less adenoid tissue and the more connective tissue. The greater the number of attacks of tonsillitis or abscesses, the greater the amount of connective tissue. (Figure 3).

Abscesses within the tonsil (Figure 4) were found in two cases, one of which had been running fever for months, but had cleared up entirely since operation.

Diplococci and streptococci were found in all cases examined No tubercle bacilli were found and no other evidence of tuberculosis.

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Metropolitan Building.

THE TREATMENT OF ACCIDENTAL WOUNDS OF THE DURA DURING OPERATIONS UPON THE MASTOID PROCESS.*

Dr. Edward Bradford Dench, New York City.

While wounding of the lateral sinus occasionally occurs in operations upon the mastoid, wounds of the dura in the middle cranial fossa are comparatively rare—at least if we are to judge from cases reported. While I have not searched the literature thoroughly, I have been fairly conversant with otological literature for the past twenty-five years, but I do not remember seeing in print any article dealing with this particular subject.

The paper in question, therefore, is based entirely upon my own personal experience and consists of a series of cases in which, during the performance of the radical operation, unintentional entrance of the subdural space occurred. It is impossible to say in some of these cases whether actual healthy dura was perforated at the time of the operation or whether the instruments passed through a previously necrotic area. In certain of the cases it seemed to me that the dura must have been necrotic at the point of perforation. In other cases, I am certain that the dura was healthy and that the opening of the subdural space occurred through healthy dura, uninvaded by any previous pathological process. Each case will be briefly detailed and the conclusions drawn:

Case 1: A young adult, with a history of chronic suppuration, presented herself at the New York Eye and Ear Infirmary, and the radical operation was advised for the relief of this condition. The antrum was small and in attempting to enter it with a small gouge I found that the dura had been perforated. On enlarging the wound, the dura looked unhealthy and I was inclined to believe that the dura had been necrotic at this point, although, naturally, this could not be absolutely proved. The radical operation was completed, a narrow strip of iodoform gauze carried into the dural opening, the radical cavity packed off with iodoform gauze, and the posterior wound sutured. This patient had no untoward symptoms and made a complete recovery.

Case 2: Male, about 20 years of age, suffered from a chronic suppurative otitis media. The radical operation was advised for the relief of this condition. On removing the external wall of the tympanic vault the dura was perforated accidentally, on account of the fact that the middle cranial fossa lay exceedingly low in this patient. I was so confident that the external wall of the attic alone had been removed that I passed a probe inward, expecting to find the internal bony wall of the attic, instead of which my probe entered the brain substance. This patient had never had any previous cerebral symptoms, and as the experience occurred in the earlier years of my practice I was naturally greatly disturbed. The opening in the dura was packed off by a strip of iodoform gauze, the radical operation was completed in the ordinary manner, great care being taken to do a complete and thorough operation. The usual meatal flap was cut, and then the area of wounded dura was thoroughly exposed by the removal of the bony wall in every direction. A strip of iodoform gauze was carried just within the margins of the dural wound and was brought out of the external auditory meatus. The radical cavity was packed with a second piece of iodoform gauze and the posterior wound sutured. Absolutely no untoward symptoms followed. The gauze from the radical cavity was removed on the second or third day and replaced. The gauze in the dural wound was allowed to remain in position for four or five days, when it was removed and carefully replaced through the meatus. Absolutely no untoward symptoms supervened in this case. The patient made a perfect recovery, and was under observation for a number of years after the operation. His suppuration was entirely relieved, and during the period of his convalescence as well as subsequently no cerebral symptoms developed.

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*Read at the forty-seventh annual meeting of the American Otological Society, Atlantic City, May 28, 1914.

Case 3: Male, about 40 years of age, suffering from chronic middle-ear suppuration, of long duration. The antrum was located high up, and was small. In attempting to enter the antrum a small, narrow gouge was used, and when the antrum had been supposedly entered I found a probe passed without resistance for a considerable distance. In other words, I knew that the probe had entered the brain substance. The bony wall around this opening was rapidly broken down by means of the gouge and the dura was found to look suspicious. I believe, in this case, that there had been a necrosis of the dura at this point, although I cannot be certain of this. The radical operation was completed, a small strip of iodoform gauze inserted through the dural opening, the radical cavity packed with iodoform gauze, and a third strip of iodoform gauze inserted between the packing entering the dural opening and that filling the radical cavity. The ordinary meatal flap was formed and the posterior wound sutured. This patient never had a rise of temperature and never experienced any untoward effect. Ten days after the first operation the posterior wound was reopened and the entire cavity was grafted by means of a Thiersch graft. The patient made an uninterrupted recovery. It is now ten years since this operation, the patient is in perfect health, and has never suffered from any cerebral symptoms.

I omit here two cases of similar conditions found at operation, where, in one case, the dura had been accidentally opened by another operator, and a brain abscess was found later. Also, a second case, in which an eroded area of dura was found at the time of operation, leading into the brain abscess. Both of these cases have been reported in the series of cases of brain abscess presented by me at the International Otological Congress, in Boston, in 1912, One of these patients recovered completely, and the other died after being fairly well for a period of over three months. As these histories have all been published, I will not go into details here regarding them.

Case 4: A woman, between 30 and 40 years of age, presented herself at the New York Eye and Ear Infirmary, with symptoms of an acute mastoiditis. There were indefinite cerebral symptoms. The patient was immediately operated upon. The mastoid was found to be small, the inner table carious and the dura was entered with the curette. I believe here that the dura was necrotic, as every precaution was taken at the time of operation and it does not seem to me that an accidental wounding of healthy dura could have occurred in this case. The patient developed symptoms of meningitis, and in spite of operative interference died as the result of meningeal infection.

Case 5: The patient was a young man, who came to the New York Eye and Ear Infirmary over two years ago, suffering from a chronic suppurative otitis media for which the radical operation was advised. In this case the dura was accidentally entered. The bony margin surrounding the dural opening was removed in every direction, so as to expose a large area of dura. The dura was then opened by two right-angle incisions, about one-half inch in length, crossing each other. Iodoform gauze was lightly packed into the dural opening after the completion of the radical operation. This patient had a slight fever immediately after the operation; the temperature, however, never rose above 102°, and gradually sank to between 99° and 100°. He complained of slight headache but of no other symptoms. The posterior wound was not completely closed in this case, the dural packing being brought out through the posterior opening. The patient was observed carefully and about ten days after the operation, showed, on examination by a prominent ophthalmologist of this city, a definite elevation of the optic papilla, on the operated side. I might say that the patient was also examined by another ophthalmogist who found no elevation beyond the physiological limit. I explained to my consultant that further operative procedure, in this case, would depend upon his decision. In other words, I had no other evidence of superficial brain abscess than that which would be afforded me by a beginning optic neuritis. The ophthalmologist saw this patient several times, and gave the absolute opinion that there was a slowly increasing swelling of the optic papilla upon the affected side. I, therefore, advised exploration of the wound, believing that I should be able to evacuate a superficial brain abscess. The patient absolutely refused operation and was therefore compelled to leave the hospital. He disappeared from observation, but I learned subsequently from one of my hospital internes that at least a year after the operation he was perfectly well. In other words, he made a complete recovery, and the slight optic neuritis from which he was supposed to suffer was probably an error in diagnosis.

Case 6: A young woman, suffering from a chronic suppurative otitis media, was advised to undergo the radical operation. The middle cranial fossa was very low in this case, and on removing the floor of the middle fossa, a small spicule of bone must have penetrated the dura. The dura was perfectly healthy in this case. The area of dural exposure was enlarged, and the dural opening was also enlarged by two crossed incisions at right-angles to each other. An iodoform gauze packing was introduced through the dural opening and the radical cavity was packed off with iodoform gauze, in the usual way. A third strip of gauze was inserted between the gauze draining the subdural space and that filling the radical cavity. The posterior wound was completely closed. A dressing was made on the third day after the operation and on removing the gauze packing from the subdural space about a quarter of a teaspoonful of softened brain tissue escaped. The patient was anesthetized, the posterior wound opened, and this localized necrotic area in the brain substance packed off with iodoform gauze. The radical cavity was also packed with iodoform gauze. and a third strip of gauze carried between these two packings so as to separate them. This patient made an absolutely uninterrupted recovery.

I have been led to report these cases because they seem to demonstrate that even accidental opening of the dura, at the time of the radical operation, is not necessarily followed by severe sequelae, provided the operator is careful to preserve perfect technic during the operation, and to do a complete operation, even although necrotic dura may be found or an accidental opening of healthy dura occur in the early stages of the operative procedure.

I believe that the favorable termination in all of these cases was due simply to the fact that perfect asepsis was maintained during the entire operation. The wounded dura was meddled with as little as possible and as soon as it was found that the dura had been opened a packing was placed over this opening, so as to prevent the entrance of any infectious material during the remainder of the operation. Great care was taken in these cases to make the operation particularly thorough, and to see that no focus of infection remained in the middle ear.

From the report of the cases it seems practically immaterial whether or not the original opening made in the dura be enlarged. In other words, my earlier cases, in which the small opening in the dura was simply occluded with a plug of iodoform gauze recovered as completely as did the later cases, in which the dura was more freely opened by crossed incisions, at right-angles to each other.

I believe, however, that in these cases the proper plan of procedure is to first remove the overlying bone about the wounded dural area over a considerable extent, in order to expose a large area of dura. I believe then, after every trace of disease has been cleared from the tympanic cavity, that the dural opening should be enlarged by two crossed incisions. Iodoform gauze should now be rather firmly packed into this opening, with the idea of causing sufficient pressure to secure an amalgamation of the cerebral membranes immediately about the wounded area. In this way general meningeal infection will be avoided. If an acute cerebritis occurs and this, of course, is a danger always to be thought of— the infected area will be freely drained and the danger of extension of the cerebritis will be very remote. This is the plan of procedure which I have followed in my later cases, and it seems to be entirely satisfactory.

It will be noted that in only one instance did death follow this accident, and that was in a case of acute mastoiditis with probable meningeal involvement before operation.

I have hesitated to present a paper of this kind, because no one appreciates more keenly than do I the actual danger of dural wounds during the course of operations upon the tympano-mastoid tract. I have presented it, however, because it seems to me that it is time some definite plan of treatment should be formulated for accidents of this kind, as they must occur to every operator of large experience. I do not wish to minimize the gravity of these accidents but simply to present a definite plan of procedure which, in my hands, has proved most successful in combating them.

15 East Fifty-third Street.

Case of Acute Hypertrophic Tonsillar Adenitis. AMEDEE PUGNAT. *Revue hebd de Laryngol*, April 11, 1914.

Moure reports two interesting cases of acute hypertrophy of the tonsils in children in whom a complete removal of the hypertrophied tonsils had been performed. In these cases, there developed a real acute tonsillar adenoiditis accompanied by fever and submaxillary adenoiditis. When the inflammation had subsided, there remained in one case on one side and in the other on both, extremely large tonsils obstructing the fauces and necessitating a second operation.

SCHEPPEGRELL.

Contribution to an International Inquiry on Ozena. J. DUVERGER. *Revue hebd. de Laryngol*, April 25, 1914.

From an examination of a large number of persons of both sexes and all ages, Duverger finds that ozena is very rare in the Arabian race, and this in spite of the fact that the Arabs herd together in large numbers, it being not uncommon for six to eight individuals to be in the same room not counting the children. As animals, however, are never allowed to come into the houses, as is common elsewhere, and Arabs never approach a dog to fondle it, the author suggests that this may be a strong argument in favor of the canine theory of Perez.

SCHEPPEGRELL.

ANESTHESIA IN AURAL SURGERY.

DR. WM. GUY DORAN, New York City.

The question of anesthesia in aural surgery needs no introduction to those familiar with operations about the mouth and pharynx and the surgeon who encounters such cases must of necessity feel the relative importance of its administration.

While we cannot boast of an ideal method of anesthesia in aural cases, we can, by earnest efforts properly directed, look forward with confidence to a satisfactory solution of the problem. Many valuable suggestions have come to us from the surgeons engaged in such operations but the field of anesthesia has become so important in our present day that it requires the undivided attention of those engaged in this work. It logically follows that we look to the anesthetist to offer the suggestions that may be of assistance in this regard; and it is hoped that the method here described may be a step forward and that some of the features will prove of assistance to those engaged in this work.

The skilled anesthetist fulfills a conscientious duty to the patient and to the surgeon and it is his earnest effort to perform his duties to each to the best of his ability. His greatest aim is to carry the patient through the anesthetic with the least amount of shock and to reduce to a minimum the post-operative distress that is so frequent after a prolonged anesthesia. This can only be accomplished by the administration of a uniform anesthesia of sufficient depth to carry the patient along the "border line" of complete narcosis, and to avoid as much as possible the interrupted anesthesia that is so wearing on the patient. He must be an assistance to the surgeon and not a hindrance. The field of sterility in aural cases must be preserved with the same care as in an abdominal operation The anesthetist should be scrubbed and gowned in all cases where he is likely to come in contact with the operator or his implements, and the sterile linen about the head of the patient should be kept free from contamination by the anesthetist. The method of anesthesia that is adapted should be carefully planned so as to avoid any interference with the movements of the operator and to leave him the greater area of the field in which to work. To accomplish this, the anesthetist must have the necessary equipments, and the method of procedure should be planned to meet each individual case. This might seem a difficult task to many, but in the cases at St. Vincent's Hospital we have found it a great advantage to consider the difficulties in aural cases and to attempt to eliminate them wherever possible by improving the method of anesthesia; and with the kind of co-operation of the attending surgeons I have been afforded ample opportunity to apply these principles in the cases that are best adapted for its use.

The patient receives the usual preparation for the operation in regard to rest, the bowels and diet. He should be insured a good night's rest preceding the operation, and one hour before going to the operating room a quarter grain of morphin and one one-hundred fiftieth of a grain of atropin should be given. The preliminary anesthetic of choice is gas-ether, which is continued until a degree of anesthesia sufficient to abolish the conjunctival reflexes is obtained. The patient is then placed on the operating table or chair, as the operator may desire, the face-mask is removed, and the anesthesia for the remaining period of the operation is maintained by our present method, which comprises the following features: 1. Illuminated, hollow, tongue-depressor. 2. Ether vapor machine. 3. Aspirator.

The tongue depressor embodies three distinct features: (a) It serves as an instrument during the operation and thereby reduces the number of instruments in the mouth. (b) It allows for the passage of ether vapor. (c) It illuminates the pharynx. It is the instrument of choice because it is more constantly used than any other, and for the greater part of the operation is within the pharynx. It is also of great aid in keeping the tongue depressed and prevents an obstruction to the respired air. The ether vapor is passed through the instrument to the base of the pharynx, where it meets the tidal air from the nasal and aural cavities. Here an atmosphere of warm ether vapor of any desired percentage can be created. The instrument (here illustrated) consists of a hollow lingual portion and a handle which is set at right angles to the body of the instrument. The material used is sheet metal, sufficiently strong to withstand a great strain. The lingual portion is hollow to permit the passage of the ether vapor and to direct it downward towards the pharynx. The small lamp which affords the illumination is set in a depression on the lingual portion well down near the tip and is protected with a transparent film of fiberloid, which insures safety against an accident to the lamp. A two-volt lamp is set into a detachable rod that traverses the entire length of the lingual portion of the instrument, and enables one to sterilize the instrument by boiling and to replace a small lamp without delay. The handle of the instrument is hollow and contains a two cell battery capable of a continuous illumination for several hours.

In certain cases we find it necessary to substitute for the tongue-depressor a laryngeal speculum (here illustrated) of the accepted design, but made with the added features for illumination and for ether vapor. These parts are interchangeable on the one handle and are connected with a threaded joint of standard size so that they may be quickly changed whenever it becomes necessary. The use of the illuminated tongue-depressor for anesthesia has greatly facilitated our work in many respects. The actual time of the operation is shortened; the anesthetist may serve as an assistant to the operator, as well as administer the anesthetic; the field of operation is well illuminated by the rays of light from the lamp, which are directed upward and backward into the nasal and aural cavities; and of still greater advantage is the clear field of operation afforded the surgeon without his having to share his limited space with the anesthetist.

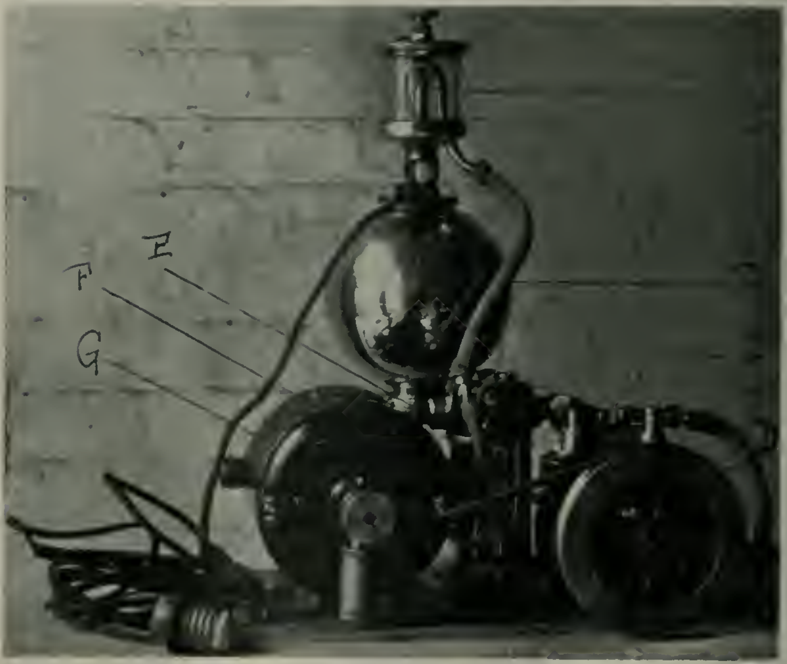


Figure 1. Ether vapor machine. (A) Ether cup. (B) Ether vaporizer and vacuum sphere. (C) Aspirator. (D) Rotary Blower. (E) Air filter and stabilizer. (F) Mercurial manometer. (G) Universal motor.

The second unit consisting of the ether vaporizer is a mechanical device of my own which produces a mixture of air and ether of any desired percentage, warms it to the body temperature and allows for the determination of air volume and pressure. It consists of a rotary blower, a motor, an air filter and stabilizer, an ether cup, and a vacuum sphere containing an electric heater surrounded by a coil of copper tubing. As the air leaves the rotary blower it is passed through an air filter and stabilizer where foreign particles are removed and the flow of air made more constant. A mercurial manometer attached to the stabilizer indicates the air pressure. It then passes into a coil of copper tubing that surrounds an electric heater, and both heater and coil are inserted in a vacuum-lined sphere. The vacuum sphere retains the heat around the coil and also serves as a reservoir for boiling water when electricity is not available. The ether is introduced into the air current from a drop cup before it enters the copper coil and in its passage through the warm coil it is completely vaporized and then allowed to flow through a rubber tube to the illuminated tongue-depressor and thence to the pharynx. The volume of the air passing through the vaporizer may be varied by changing the speed of the motor. The rotary motor that I have adopted is capable of deliverying 20 liters a minute, which is greater than the amount required since the patient takes the normal amount through the

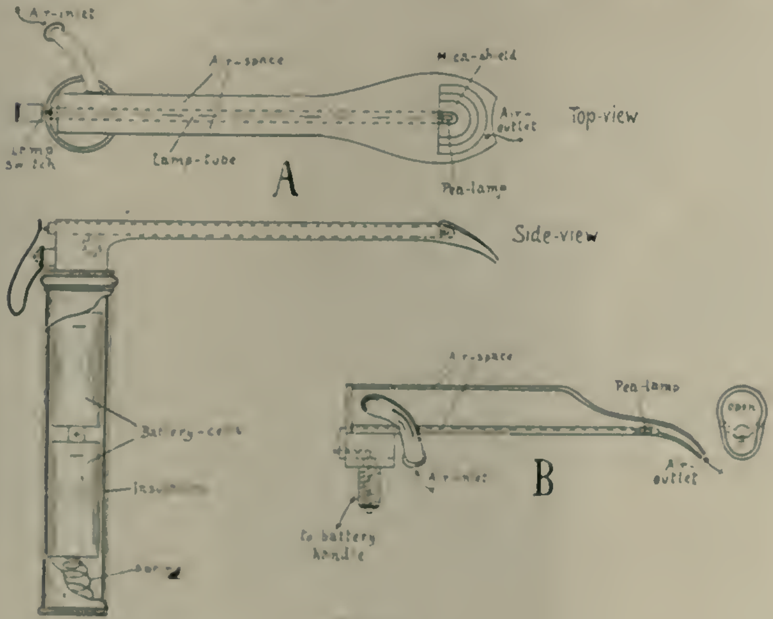


Figure 2

mouth and nose with each inspiration; hence it is unnecessary to deliver through the machine more air than is required to carry the ether vapor to the pharynx. The approximate strength of the ether vapor can be determined by allowing a known amount of ether to drop into a uniform volume of air passing through the machine each minute and to a degree an absolutely uniform anesthesia may be maintained.

The third feature of the method, and one that has proved to be of great assistance in the cases of aural surgery, is the aspirator. In the cases that are operated on in the erect position, the blood and mucus that fall into the posterior pharynx are often very annoying to care for, because of the great difficulty in breathing, and of the possibility of developing a case of pneumonia directly due to the aspiration of septic mucus or blood into the trachea. The aspirator is attached to the inlet valve of the rotary blower and consists of a glass jar with air-tight connections, one attached to the blower and the other to a tube leading to the patient. The mucus and blood that gather in the pharynx are sucked into the tube and carried to the glass bottle or jar where they are deposited and accumulate in the bottom of the receptacle until the operation is completed. This feature of the machine was of great service in tonsillectomies and adenectomies that were treated in the erect posture. The entire field of operation is completely exposed to view and illuminated, thereby giving the operator a chance to make a clean enucleation and to keep the field clean and dry.

This combination has served us with success in the cases thus far, and we have every reason to believe that it will continue to be of assistance. The ease with which the machine can be operated makes it a safe practice even in the hands of the interne; and the weight of the machine, which, all told, is not over fifteen pounds, will make it useful to one who wishes to operate in the home with the same degree of safety as in the hospital. All these features may not be applied in every case, but as the occasion demands we can change the method slightly to meet the requirements of the particular case. The laryngeal speculum, the tongue-depressor, the nasal catheter or the intra-tracheal catheter, may be used as the occasion demands; and in the event of not having electricity for power we can use a foot bellows and boiling water in the vacuum sphere with equal success.

The advantage of the method may be summarized as follows: 1. Shortens the duration of the operation. 2. Diminishes the shock to the patient by permitting a shorter, lighter and more uniform anesthesia. 3. Lessens the post-operative distress. 4. Lessens the secretions in the mouth. 5. Respirations are not obstructive. 6. Lessens the possibility of bronchitis and pneumonia. 7. Illumination of the pharynx permits of a more complete view of the operation and does away with the inconvenience of a head-mirror and the electric attachments. 8. Aspiration of blood and mucus keeps the throat clear and enables one to control hemorrhage easily. 9. Gives the surgeon complete control of the operative field and does not interfere with the sterility of the operation.

61 Hamilton Place.

A Rare Case of Exclusive Localization of the Fuso-Spiriliar Symbiosis. R. GEZES, *Rev. hebd. de Laryngol.*, March 28, 1914.

The patient, a woman of 22, developed difficulties in swallowing and breathing and great pain. A laryngoscopic examination was difficult on account of the marked swelling of the fauces. The region of the lingual tonsil was entirely covered with a pale pseudo-membrane, the whole lymphoid region presenting marked inflammation. The hypertrophied lingual follicles were congested and slightly ulcerated. The action of the arytenoids was normal and the vocal cords were only slightly inflamed.

A bacteriological examination showed much epidermic detritus in the midst of which were found numerous cocci, staphylococci, bacilli ramosus, spirilla and fusiform bacilli. The patient recovered after twelve days, the treatment consisting principally of insufflation of potash and irrigations of boro-oxygenated water.

The diagnosis of this condition from diphtheria presents some difficulty but the following points will assist: The temperature is higher than in diphtheria; the inflammatory process is more limited and with less involvement of the adjoining regions. The fetor is characteristic of the fuso-spirillar infection; the bacteriologic examination, however, is the distinctive factor in the diagnosis.

SCHEPPEGRELL.

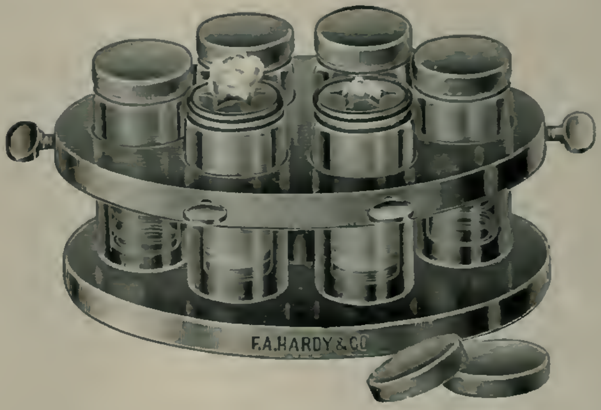
ASEPSIS IN OFFICE PRACTICE.

Dr. Claude G. Crane, Brooklyn, N. Y.

Careful asepsis in office practice is just as urgent as in the operating room. In the operating room every one unconsciously observes the strictest asepsis. Is this true of office practice?

The man doing internal medicine should have this in mind, but it is the specialist who needs to be particularly observant of office asepsis, because he deals so largely with the class of cases that have foci of active infection.

The ear, nose and throat man should never relax his vigilance. For the past few years I have been taking a great many cultures of all classes of ear, nose and throat cases, for the purpose of diagnosis and vaccine therapy. There have been few cases, in which a culture taken with the platinum loop, has not shown an active growth of pathogenic bacteria. Every patient is entitled to protection from the infection of every other patient. The electric sterilizer is a valuable asset because it can be placed where all instruments used in examinations, treatments and operations can be dropped in. The use of strong antiseptic solutions does not take the place of sterilization. Rubber gloves also serve us well in the office as in the hospital, and sterile dressings are easily attainable.



One thing in the office of the ear, nose and throat man which is far below the standard of surgical asepsis is the cotton container. All our efforts to be surgically clean are futile with the present cotton container. Every one is familiar with the various forms now in use, and must realize that they are a source of infection from one patient to another. They stand with cotton exposed hour after hour, and the repeated extraction of cotton with one's fingers from this open container is so contrary to our idea of surgical asepsis that one wonders that it has been used year after year.

For some time I have been trying to devise a container for sterile cotton which would be practical in a busy office. The one which I wish to show you to-night (see cut) I have found, after a period of daily use, to fulfill the purpose. The stand is very heavy which makes the extraction of cotton with one hand possible and easy. The bottles containing the sterilized cotton, are made without an inside shoulder, so that the spring can push up the cotton as needed. The opening in the top is star-shaped, and a cap which effectually seals the container fits tightly over this. The stand holds six bottles but it is necessary to have a sufficient number of containers, so that a new one may be used for each patient. There are two methods of sterilization; the empty containers may be sterilized and then filled with sterile cotton, or the container may be filled and then sterilized. Soda must not be used in the water in which the container is sterilized as it will discolor the aluminum cap.

In planning this container I have tried to make it as simple as possible, and I hope it may be of as much service to others as it has been to me.

121 St. James Place.

Immediate Closure of the Wound After Antrotomy in Acute Mastoiditis. E. J. MOURE. *Rev. hebd. de Laryngol.*, May 2, 1914.

In the majority of cases of acute mastoiditis we may, after having thoroughly cleansed the diseased area and opened the antrum, simply insert a drain into the antrum and completely suture the retro-mastoidean fold. This method has the great advantage of hastening the cicatrization and avoiding deformity after operation.

SCHEPPEGRELL.

SOCIETY PROCEEDINGS.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY,

EASTERN SECTION.

Meeting of January 17, 1914.

DR. LEWIS A. COFFIN, CHAIRMAN.

ADDRESS OF CHAIRMAN.

Dr. Lewis A. Coffin: I wish to thank the members of the Society for the honor that was done me in my election as Chairman of the Eastern Section of this Society and I wish in the name of the New York members to extend to our visiting members a most hearty welcome. About a month ago was held in this room a meeting of the Section of Laryngology of the New York Academy of Medicine commemorating the founding of the New York Laryngological Society forty years ago. This was the first Laryngological Society and the Laryngological Section of this Academy is its successor. At the meeting referred to, Dr. Delavan delivered an address in which he spoke of Dr. Horace Green as not only one of the founders of the Laryngological Society but as a pioneer in laryngological work in this country. There have lately come into my hands two letters written from the home of Dr. Green by Miss Julia Robertson, a patient, who was staying at Dr. Green's house for treatment. Miss Robertson afterwards married Gov. Pierpont, War-Governor of Virginia. I have thought that the following extracts might be of interest. They were written sixty-three years ago and are as follows:

12 Clinton Place, N. Y., October, 24, 1850.

Dr. Green has been the most successful physician in the United States in curing throat diseases, has gained a great reputation and has made a great fortune. I had felt a kind of desire to be under his care for several years, but said little about it because I thought it "out of the question." But here I am and Dr. Green has promised to do everything in his power to cure me. The house is very large and furnished elegantly—costly paintings and statuary are scattered all over the building. It is lighted by gas and the croton water, hot and cold, is carried all over it. There are speaking trumpets in the walls, in fact everything elegance or comfort could suggest. The Doctor is about 40, young looking, handsome, polite, but sometimes absent-minded, has traveled in Europe and likes style, but not dashing. The New York Medical College is at last done, and Dr. Green is one of the Professors. Last, but not least, I will tell you about my throat. Dr. Green sent for me to the office a few days after I came and looked at my throat. "Bad enough!" was his exclamation, "there is a deep ulceration out of sight, your physicians have not discovered it," said he. "What would you say, Miss R., if I should be obliged to cut away some of that bad flesh that is in your way there?" I replied, "Whatever you think best to do I will endeavor to submit to patiently." "Well then, the sooner it is over the better, do you not say so?" I answered, "Yes, by all means"—I seated myself and while he prepared his instruments, he said it would soon be over and spoke low and sweetly to assure me, but he was mistaken in his lady, I needed no coaxing and had determined beforehand to make no fuss, if it killed me—so I smiled and said nothing. Dr. Jenkins (Dr. Green's junior partner) came behind, I afterwards learned to hold my head, but that was unnecessary and he did not touch it. I sat perfectly still, and the Doctor cut off my left tonsil. The blood streamed from my mouth for about half an hour, and I then sat down and had the right one cut off, which started the other, and I bled until I could hardly hold up my head. After it stopped a little, a sponge application of nitrate of silver was applied and almost strangled me. The bleeding began again and continued until about two o'clock—for a few days I suffered a great deal of pain, but I had kind nursing and "French fixin's" to get well on. Yesterday what was my horror to learn that my palate must come off, down I sat and off it came. I have hardly spoken a word since. The pain at times is intense. I am dreadfully hungry. They send up nice soft things to tempt me to eat, but it is a difficult matter to swallow. Except my throat, I am well, perfectly so, feel a great deal better than I did before I came, and look healthier, have a better complexion and no headaches. Hope is everything in this world, and I hope now to be cured.

12 Clinton Place, December 27, 1850.

You ask if I will ever talk again? Yes! and better and faster than ever, my throat improves daily. In fact I have entirely recovered and have begun to practice my singing lessons again. I wish that you could have been here on Christmas. It was truly a merry Christmas to us all. Any one that produces a laugh on Christmas or contributes to the atmostphere of fun and good feeling is considered a benefactor. I did my best at a burlesque of Dr. Green, and it took admirably. The Doctor has written two books—one on "Bronchitis" and another on "Croup." I got a very large box, carpeted it and furnished it with the children's furniture, selecting such as represented the office furniture, then I bought two ridiculous india-rubber heads and fastened them to jointed bodies, dressed them, one like a patient and the other like Dr. Green. I placed the old woman in the chair with her mouth wide open and her eyes rolled back, one arm up entreatingly and the other on his arm, while he stood stooping over with a stick and a swab on the end of it ready to sponge her throat. I had placed a little spittoon at her side, and on the table a bottle of nitrate of silver and a bunch of different sized representations of the probang. The probang is the name of the instrument he uses to make sponge applications with. On the center table I put miniature representations of bills, receipts, prescriptions, pamphlets, a tiny box of wafers, pencil, etc.—Oh! how they laughed! It was a pretty good take off, for Dr. Green stands in that position half of every day with his probang in hand treating first one then another. The doctor says he shall keep it for a sign, and every one who comes in is taken up to see "Green on Bronchitis and Croup." Oh, I put a baby in a cradle, that squeals horribly, for the croup.

Some Gateways of Cryptogenic Infection.

(a) The Alveolar Procceses: Dr. Wm. H. Haskin, New York.

Published in full in the March, 1914, issue of The Laryngoscope, *p. 169.*

(b) The Tonsil. Dr. George B. Wood, Philadelphia.

DISCUSSION.

Dr. M. L. Rhein: Discussing the oral infection part of this subject, I would say that the popular idea of dental infections is generally embraced by the idea of pyorrhea alveolaris. Dental organs, embracing the alveolus, teeth, pericementum and gums are not like the tonsils which have just been discussed, but are end-organs. When there is faulty nutrition, when the resistance to infection is lowered, it is much more liable to manifest itself by some abnormality in an end-organ than in any other place; this will always account more or less for the different phases of pyorrhea alveolaris. It is frequently an important diagnostic factor in some of the constitutional diseases where malnutrition plays an important role, but it is not the prominent etiological factor which in the last few years has been so commonly ascribed to it. The main reason for this is because the pus which comes from the gums and the alveolar structures in this stage is to a large extent eliminated. It undoubtedly has a great toxic effect, but it is by no means so powerful as the toxemias which result from other phases of dental infection.

The most serious type of dental infection is the alveolar abscess. Then we have another type, the pericemental abscess; that is a form of infection which exists between the lining membrane of the roots of the teeth and the periosteum of the jaw itself. Very little as been written about this form of abscess. In these cases the pulps of the teeth remain vital and the most acceptable theory of the etiological conditions of these abscesses is that this structure is the degenerate remains of the substance from which the enamel of the teeth is formed, and on this account any micro-organism that may be in the circulation finds here a material which is more or less prone to infection, especially when the resistance of the body as a whole is more or less lowered. The diagnosis of these infections is very difficult and very rarely is made.

Now the alveolar abscesses result from infection of dead pulp tissue arising from the ordinary pyogenic flora such as are found in the mouth, more or less actively virulent. Where the inflammation becomes sufficiently powerful the purulent matters break through the alveolar plate and the abscess is easily recognized. Since we have had the aid of radiography, we have learned that we have a form of abscess that has a similar etiological factor with the conditions found in the crypts of the tonsils, which have formed such a prominent etiological factor in various forms of endocarditis. We have found what is known as a blind abscess or granuloma, where imperfect dental work has been done on the pulps of the teeth, or where the pulp has died without being taken care of and where its absence gave absolutely no discomfort and was not recognized by the slightest form of irritation. They also occur as the result of some trauma,—breaking down of the pulp connection as it enters the teeth. The reason these abscesses cause so little inflammation is because the infection appears invariably to be due to the streptococcus viridens. In the many cases in which cultures have been made the streptococcus has always been found. The virulence of this form of streptococcus is very slight; so its inflammatory action is not very high. We have here imprisoned in the spongy cryptoform cells of the alveolus a small abscess sac which sends forth continually a small amount of toxic matter through the circulatory media of the lymph channels, and we know from the nature of the specific character of this toxin that its attack is directed against the heart itself. The toxemia is the same as that caused by the cryptoform infections of the tonsils infected by the streptococcus viridens.

Your attention is especially directed to two practical points. These numerous infections are most often caused by imperfect dental work. There are, however, simple scientific methods of pulp technic which if properly followed out will leave the ends of the roots in such a condition that infection of these parts cannot take place.

Dr. T. S. Southworth: Your President has asked me to say a few words on this subject from a pediatric standpoint. In studying the crptogenic infections as exemplified in children, we have to consider the deplorable conditions which exist in the teeth of so many of them. It is true that simple caries does not come directly under this head, but as Collyer says: "The amount of oral sepsis arising directly from carious teeth is small compared with the sepsis from conditions started by their presence."

Unquestionably, bad oral conditions affect the health of the child, and the poor nutrition and anemias which they cause render them more susceptible to the constant septic inoculation from carious cavities or diseased gums. Such effects are more commonly seen in infant asylums where in badly nourished infants and children gingivitis extends to the roots of the teeth, causing necrosis of the jaw or even noma, resulting in deformity and often in death.

The public is only partly awakened to the importance of the care of the teeth in children. I agree heartily with a recent statement that no public foundation could be better employed for the benefit of the race than one which would deal with this problem.

Turning now to the tonsil: Two matters have been almost generally accepted by all thoughtful pediatricians; these are, first, the necessity for complete enucleation of the tonsils, and especially of buried tonsils, in all young persons subject to attacks of acute rheumatism; and second, the complete removal of the tonsils where there is definite or suspected tubercular enlargement of the cervical glands. Further, this is a good practice where there is recurrent enlargement of the cervical glands.

In this connection, it should be remembered that many of us believe that there is frequent enlargement of these glands from infections harbored in the crypt of the naso-pharyngeal tonsil calling for its removal. The presence of tonsillar plugs which may be extruded and swallowed, implants at intervals noxious bacteria among the flora of the intestinal tract. While this is doubtless rarer in youth than in adult life, it undoubtedly occurs, for we have all seen considerable masses of cheesy material in the buried tonsils of rather young children,—three to four years of age. That such implantations should be in part responsible for the disturbed nutrition and anemia of these children, is not unreasonable. Even styes, furunculosis, and acne have been ascribed to this source, and Elliott raises the interesting question whether chorea may not at times have this starting point.

Childhood is a good time to forestall and prevent these infections, and there is no knowing how much of the morbidity of later life may be prevented by proper attention to the teeth, and tonsils at an early age.

Dr. Egbert Le Fevre: I have been very much interested in this question of oral sepsis and in the papers that have been read to-day. The subject has engaged my attention for some time, and I have been more and more impressed with the question of the infection of children from this source as compared with later years when the teeth show more of the effects of dental processes. There are several clinical features which are important. We have noticed a peculiar form of thrombosis occurring in certain portions of the body and subsiding, only to re-occur either on the same vessels or elsewhere. At one time, the intestinal tract was thought to be the source of the infection but later investigations have shown that a large percentage of cases are caused by the absorption of septic material from the mouth. Very often this is only controlled by a thorough cure of the mouth conditions.

We also have a type of anemia which, while it is in the early stage a form of secondary anemia, can become so progressive that in the later stages it shows the clinical picture of pernicious anemia. What micro-organism causes this particular anemia we do not know, but it is frequently associated with oral sepsis; it is not a general infection of the blood stream by the micro-organism, as blood culture shows no growth.

Dr. Rhein spoke of the streptococcus viridens, and its relation to malignant endocarditis. That is the most destructive of all the organisms we have in the mouth, and when it gains entrance to the blood stream can cause primary malignant endo-carditis. It may, however, find lodgment elsewhere in the circulatory system and produce a fatal sepsis. Cardiac valvular disease can be caused by the streptococcus viridens without the organism finding lodgment in the heart. The toxins, absorbed from any focus, can cause inflammatory changes in the endo-cardium and later chronic valvular deformity. In all cases of recurring endo-carditis of obscure etiology, careful examination of the mouth for foci of infection should be made. Too often, we are satisfied with a cursory examination. The examination should be a thorough one. As has been pointed out, frequently the condition can only be detected by the aid of the x-ray.

Time does not allow discussion of the relation of oral sepsis to the so-called "rheumatic" pains and arthritis conditions.

An unfortunate phase of the propaganda for the care of children's teeth is that where patients are sent to the dentists to have the teeth corrected it often happens that on account of faulty treatment a worse conditions is introduced, new avenues of infection opened up, and the condition made worse. The dental societies and all those connected with them should insist that more careful treatment be given to these cases, and those who are supposed to take care of the teeth should have a better knowledge of bacteriology and oral hygiene.

Dr. Southworth spoke of the infection through the tonsil by tubercle bacilli. This avenue is most important, especially from the pediatric standpoint. While there is care of the mouths of children after the dentition is begun, very little attention is given to the mouths of children before. I have noticed large numbers of cases in which tuberculosis has come from the retention in the mouth of food, milk, etc., which has evidently been infected by the turhercle bacilli.

The Diagnosis and Treatment of Brain Abscess DR. WILLIAM W. SHARPE.
Published in full in THE LARYNGOSCOPE, *March, 1914, page 201.*

Barany's Theory of Cerebellar Localization: Practical Bearing on the Diagnosis of Cerebellar Abscess. DR. PHILIP D. KERRISON.
Published in full in THE LARYNGOSCOPE, *March, 1914, page 192.*

DISCUSSION.

DR. E. B. DENCH: I have been deeply interested in both of these papers, and especially in what Doctor Sharpe has said about the relative frequency of cerebral and cerebellar abscess.

According to my own experience, brain abscess occurs above the tentorium about twice as frequently as below the tentorium. Certain English statistics have been published in which the relation has been reversed. From a clinical point of view, however, I am certain that as far as otitic abscess is concerned, all observers will agree that they are found about twice as frequntly above the tentorium as below it.

Regarding cases in which the abscess has remained latent for a long time, I remember one case in which an abscess, situated in the region of the island of Reil and of the inferior frontal convolution, was found ten years after an acute otitis. Ten years after the primary attack, tho patient had a second involvement of the same ear, followed by a mastoid operation for the relief of this acute condition. Symptoms of brain abscess appeared, and the abscess was found in the region above mentioned. The thickness of the abscess wall made it extremely probable that this abscess had remained latent since the first attack of acute otitis, ten years before.

With reference to the value of nystagmus toward the affected side, as a diagnostic sign in cases of cerebellar abscess, I would cite an interesting case which came under my observation at the New York Eye and Ear Infirmary. This patient came to the hospital with symptoms of dizziness and a nystagmus toward the healthy side. The ordinary radical operation was done, but the patient's vertigo continued, and the nystagmus then became reversed and was toward the diseased side. At a second operation, one of my assistants removed a large sequestrum from the petrous pyramid. The internal auditory meatus was easily demonstrated upon this sequestrum. After the second operation all of the patient's symptoms disappeared. In this case, there was evidently a localized meningitis about the trunk of the auditory nerve.

I was very glad to hear Doctor Sharpe advocate so unreservedly the value of a decomposition operation in brain abscess, especially where the abscess cannot be exactly localized, and also to learn that he advocated the performance of the operation for draining the abscess in two stages,—first, doing a decompression operation, walling of the suspected area, and later opening the brain substance.

My impression is that I was the first to put this suggestion in print. (Transactions of the American Otological Society, 1906, Vol. X, Part 2, page 266.) I am also equally certain that this observation was not entirely original upon my part but was the result of a conversation with Mr. Ballance, of London, in which he suggested the possible advisability of this measure. As far as I knew, however, the article above referred to is tho mention of this matter in literature. I believe this plan is eminently advisable in all cases of brain abscess in which the abscess cannot be opened along the avenue of infection. As the result of the decompression operation and packing of the subdural space with iodoform gauze, a line of adhesion is formed completely obliterating the subdural space. These adhesions form very rapidly and should be fairly firm at the end of twenty-four or forty-eight hours. The subsequent exploration of the brain substance can then be carried out, and if the abscess is opened, a purulent meningitis is not likely to result from infection of the cerebral membranes from the pus from the abscess, as the arachnoid space is completely walled off. Moreover, as a result of the decompression operation, the pus in the brain substance will naturally tend to travel along the line of least resistance, and will, consequently, point, as it were, toward the surface of the brain. The urgent symptoms due to brain abscess are usually pressure symptoms. The decompression operation relieves these pressure symptoms, and, at the same time, favors the pointing of the abscess, which can then be opened with comparative safety through the exposed area, as the arachnoid space has been completely shut off as the result of the preceding decompression operation. I believe Doctor

Sharpe is right in the statement that these decompression operations should be performed through a sterile field. In other words, if, on exploring carefully the tympano-antral roof, we find absolutely no evidence of any avenue of infection, I believe it would then be wiser to do a sub-temporal decompression through a sterile field and open the brain substance at a subsequent period, rather than to extend the previous operative field in doing the compression. I heartily agree in the advantages of the wide field of exposure for draining cerebellar abscesses. I believe here that a preceding decompression operation is a good procedure, unless some definite avenue of infection leading directly into the brain substance can be discovered.

Regarding the treatment of the case after the abscess has been opened, I am perfectly certain that in some of my earlier cases a fatal result could be attributed to too much exploration of the abscess cavity. We must remember that in these patients the abscess has existed for some time. Consequently, if we simply open the abscess, put in a drain, and allow the normal brain pressure to obliterate the abscess cavity, we are doing our best for these patients. The idea that we must investigate every nook and cranny of the abscess cavity and wipe out carefully every drop of pus in order to obtain a successful result, is, I think, a wrong idea. I do not believe in the use of the encephaloscope or any such instrument in the treatment of brain abscess. My own practice in recent years has been to simply separate the lips of the incision in the brain abscess by means of thin retractors, so as to allow the pus to escape freely. A cigarette drain, of proper size, has then been introduced into the abscess cavity and the dressings have been changed as infrequently as possible. At the end of a week or ten days a strip of folded rubber tissue has been substituted for the cigarette drain. This plan of treatment has given me better success than any other in my own cases. I have no experience in using the glass tubes, suggested by Doctor Sharpe, but I believe that they may be very valuable.

In closing, I wish to say that we are very much indebted to Doctor Kerrison for his exceedingly good presentation of Barany's recent work. All of us are at present investigating along the lines suggested in Barany's original article, which has been so admirably translated and explained by Doctor Kerrison.

Dr. Foster Kennedy: Two points have been made by Dr. Sharpe which seem to fit closely together,—first, the latency of a tempero-sphenoidal abscess; and, second, the successful outcome of operations on such. Owing to the first, the difficulty in localizing the lesion is very great, but just for that reason abscesses, in the right temporal lobe at any rate, can be dealt with more radically and more successfully than can lesions in other brain areas. Stress should be laid on the peculiar physical phenomena engendered in these conditions. These were called by Hughlings Jackson, "Voluminous mental states." In these, there is no loss of consciousness, but rather a curious change of consciousness which seems to be in some way enlarged, with a curious feeling of reminiscence,—the so-called dreamy or reminiscent state. Some of these sensory resuscitations may be very complex and of such vividness as to amount to projections of the person's consciousness so that they dream dreams and see visions. Associated with these are manifestations of uncinate irritations,—as, for instance, in the case of one of my patients who was haunted by an old woman in vile-smelling rags, whom four or five times a day she saw at the foot of her bed. This apparition,—of the unreality of which she was quite aware,—constituted her major seizure. The minor attacks were a changed consciousness, "a peculiar, unearthly feeling." She had the usual signs of intra-cranial pressure: headaches, vomiting, and choked discs. There was also a gradual weakening of the face, arm and leg on the left side, the parts being named in the order of the severity of their affection. The facial paresis was more marked on emotional expression; if one thalmus be pressed upon, the opposite side of the face will be unable properly to express emotion. Further, from the positions of the motor center, pressure directly upward from the temporal lobes will damage first the facial, then the brachial, and last and least, the leg center. Hence, the hemiplegia induced by tempero-sphenoidal expanding lesions is of the type described as being present in Dr. Sharpe's' patient,—most marked in the face, less in the arm, and least in the leg. So much for the paralyses.

As regards the reflexes, it might be well to remember that a unilaterally depressed abdominal reflex is the most delicate sign of ingravescent pyramidal pressure. The text-books tell us that word deafness is the result of left-sided temporal abscess. This is not so. Abscesses grow slowly and cause not a destruction but a deterioration of word centers, so that the word memories become elusive, especially those of names which have much fewer associations in the brain than do verbs, adjectives, and prepositions.

As regards operative procedure, it would appear wise in right-sided cases to attempt to enucleate the lesion and in the case of abscess on the left side to drain and create as little disturbance as possible to cerebral tissue lest destruction of the transverse gyri of Heschel result in a disastrous sensory aphasia.

DR. S. MACCUEN SMITH: The subject has been freely discussed and the time is short; so I will speak briefly. Notwithstanding the advance in the past two years in the diagnosis of intra-cranial lesions, we are still very much in the dark, especially as to the localization of the average case of brain abscess. In my opinion, it is the most difficult task that we, as well as neurologists, have to accomplish.

Pain is of great importance. In the cases that I have seen, it has been a very constant sign, and in those cases of temporo-sphenoidal abscess formation it has been more especially marked over the frontal region of the affected side.

As to localization: I think we probably have to guess at it in a good many instances. In some of my most striking cases it has been almost purely a guess, notwithstanding that I have had the aid and support of eminent neurologists. The majority of brain abscesses are located in the temporo-sphenoidal region, and given this fact, and then the signs of pressure, I believe that, notwithstanding the fact that we know we have an abscess formation of the brain but cannot definitely locate it, we are justified in operating on the temporo-sphenoidal lobe.

In spite of the fact that Dr. Sharpe does not believe in draining through the avenue of infection, most of my cases have been drained through that avenue. In these cases there was some evidence of carious erosion involving the tegmen antri or tegmen tympani, or else the osseous structure was entirely eroded, exposing an inflamed dura. In the few cases in which we were able to get an autopsy, it would seem that the patients died as a result of satellite abscess formations which were separated from the parent abscess by a layer of healthy brain tissue. In other words, the abscesses did not communicate one with another, as has been found by Neumann and others in their cases.

Dr. McKernon: I did not come in until Dr. Sharpe was well advanced in the reading of his paper and I should like to ask one or two questions. First, I should like to know how large a needle Dr. Sharpe uses; second, he speaks of almost always finding absence of the stalk. That coincides with my own experience. I have seen this in only two cases which led to the abscess cavity. This is contrary to many text-books, which tell us to look out for and follow the stalk, and the infection will be found.

I am glad to hear Dr. Sharpe speak of his experience as coinciding with that of others. I should also like to know if he does a simple decompression prior to his inspection of the brain cavity, as was suggested by Dr. Day several years ago. I have operated on two cases in the past year by this method. One case developed cerebral edema, but the patient recovered and I believe that the absence of the meningitis was largely due to the fact that I did the decompression on one day and the exploration twenty-four hours later.

He also spoke of glass tubes, and I understood him to say that one was inside of the other. I have not used glass tubes, but I have employed the ordinary drainage tube and cigarette drain, and lately I have used rubber tissue, rolled tightly together.

A word in regard to the trauma that we have been in the habit of inflicting in these cases. If a brain abscess is opened, drained, and let alone, you conserve the best interests of the patient. If you put in your finger and cause a lot of trauma, you increase the danger to the patient and cause conditions that will result disastrously. Open the abscess, insert a drain, and let it alone.

Dr. Dench spoke of metastatic abscesses. I have seen only one metastatic abscess; that was six weeks from the time of operation where the metastatic deposit was close to the Island of Reil. I am very glad to have had the opportunity of hearing Dr. Sharpe's paper.

I was also interested in Dr. Kerrison's paper and think that the points he brought out are very valuable and should be taken up by all.

Dr. Sharpe, closing the discussion, said: As the majority of operations for brain abscesses are exploratory, it is naturally a very dangerous procedure to open the dura or to puncture it blindly through an infected area like the mastoid; if no abscess is found, then the danger of a meningitis is very great; besides, if only a small opening is made, the danger of a meningitis and also of a medullary abscess are to be feared the more. The decompression opening should always be a large subtemporal one; through this opening, all parts of the temporo-sphenoidal lobe may be carefully explored, as in the case described. The ventricle puncture needle has a lumen of one-eighth of an inch; its point is blunt, so that it will push vessels to one side and not puncture them; there is very little danger in using such a needle. A decompression is in no sense a decompression *unless the dura is opened*. The dura in adults is inelastic, so that the mere removal of bone does not relieve intra-cranial pressure to any beneficial degree. Drains of rubber tissue, cigarette drains, and even rubber tubings are very unsatisfactory, as they become blocked very easily. The double glass tubes have been most helpful.

Syphilitic Affections of the Eighth Nerve. DR. ARTHUR W. M. ELLIS.

Dr. Ellis pointed out the frequency of involvement of this nerve early in the course of the disease, and reviewed the literature on the subject.

He reported seven cases which he had had under his own observation, five of which had occurred within the first year of the disease, and laid special emphasis on the findings in the spinal fluid of these cases, all of these patients showing in their spinal fluid positive evidence of a syphilitic meningitis, i. e., increased cells, a positive globulin reaction, and in five of the seven cases a positive Wassermann reaction in the spinal fluid. He called attention to the fact that these patients showing involvement of the eighth nerve were cases of a wide-spread and serious infection, i. e., syphilis of the central nervous system. The results of treatment in these cases had been very favorable.

The hearing in the five cases which occurred early in the disease and in which treatment had been instituted shortly after the onset of the disturbance of hearing had in all markedly improved, all five of these cases having now normal hearing for watch tick and whispered voice. The spinal fluid had been reduced to normal in all but one case still under treatment.

He emphasized the necessity of treating these patients until the spinal fluid returned to normal, i. e., they must be treated as cases of syphilis of the central nervous system and not as cases of isolated ear disease. To accomplish such results, a large amount of treatment is necessary in many of the cases. In one patient a normal spinal fluid was not obtained until the patient had received 14.5 gm. of salvarsan, 9.35 gm. of neosalvarsan and 35 intra-muscular injections of mercury.

In conclusion he urged the examination of the spinal fluid in every case of disturbed hearing occurring in a patient infected with syphilis, and absolutely insisted on repeated examinations of the fluid for the intelligent treatment and subsequent observation of all patients suffering with syphilis of the central nervous system.

DISCUSSION.

DR. F. L. JACK: We are very much indebted to Dr. Ellis for his interesting presentation of this subject. The question of syphilis of the eighth nerve opens up a number of points for discussion, but I shall confine my remarks to the use of salvarsan.

I understood Dr. Ellis to say that there has been an increased number of cases of affection of the cranial nerves since the use of salvarsan as compared with the number before its use. This statement agrees with that of Alexander but is hardly borne out in literature. The important fact for us to decide is whether the use of arseno-benzol is followed more frequently by affections of the eighth nerve than is that of mercury. It seems to me that the opinion of the syphilologists in this connection would be important. The view of most of those whom I consulted was that an affection of the eighth nerve due to salvarsan would be a wonderfully rare accident, and hundreds of cases were cited which had no untoward symptoms. The only case of cranial nerve affection spoken of was one of the optic nerve which followed a dose of 0.6 g. of salvarsan, and was the only one in 2,000 injections of "606." The case was seen by my brother for an optic neuritis, later developing iritis. The patient subsequently had four or five injections of salvarsan, but the disease continued and ultimately the eye was lost.

Dr. Ehrlich is of the opinion that when these lesions occur the amount of salvarsan has been too small, the doses failing to devitalize certain groups of spirochetae lodged in the nerve sheaths.

Dr. Duel and Dr. Fordyce have done much to put this question on a practical basis. Dr. Duel has reported many cases from literature and he is of the opinion that the affections of the eighth nerve were due to the syphilitic virus rather than to the salvarsan. Dr. Fordyce has reported several hundred cases in which salvarsan was given and not one case of auditory nerve disturbance.

Dr. Abner Post, of Boston, in a recent paper on the use of salvarsan states that "Were the worst allegations realized, they would be less dreaded than the fatal effects of tabes and general paresis, which we hope to forestall. The accidents are wonderfully few. We may, perhaps, regard the use of this new drug as surgeons have regarded various serious operations—dangerous at first, their danger has been gradually diminished almost to the point of extinction by experience and improvement in technic."

Dr. Duel: I fear that Dr. Jack has over-estimated the value of my contribution to this subject. It so happened that two years ago four cases came under my observation within a short period of time, all of which had been treated for about two months previously by salvarsan; so I looked up the subject and reported the cases.

Dr. Ellis' paper is eminently practical and valuable, especially from the standpoint of how we are to attack this condition. All the men who have made investigation of a large number of cases (with the exception of Alexander, of Vienna) have concluded that the lesion in the eighth nerve is due to the syphilitic spirocheta and not to the toxic effect of the drug. That is a highly important point but it will not do to stop there.

A very important point which Dr. Ellis has brought out is that none of us have been treating our cases with sufficient care or with sufficient dosage of salvarsan. The results which he has recorded in his paper are evidence to me that many cases which I see and which are turned over to the syphilologists to treat have not been handled properly. They should have had larger doses and more careful observation. They should have been examined to see if further doses were necessary. Unfortunately it is difficult to follow up these clinical cases, but of those that I have been able to keep under observation none have shown any marked improvement.

This paper has been of great value to me inasmuch as it has shown that better results may be expected when treatment is pursued with sufficient vigor under careful investigation.

Dr. John D. Richards said that he could add but little of definite value to what had already been presented. The exact nature of the ear lesion which follows the administration of salvarsan has had some light thrown upon it by the opthalmoscopic examination of those eyes which occasionally become suddenly blinded following the administration of the same remedy. In some of these cases there has been revealed upon examination a thrombosis of the central retinal vein, with accompanying hemorrhages in the retina, and there follows subsequently an atrophy of the optic nerve. The blindness and the atrophy of the optic nerve, however, are the end-results and do not represent the original lesion which is a vascular. Similarly in the ear, the deafness and the subsequent atrophy of the nerve are often the end-results, the original lesion being, as in the eye, a vascular lesion. If we translate the ophthalmoscopic picture to the labyrinth we shall, no doubt, get an accurate idea of what occurs in some of the cases where deafness suddenly follows upon the administration of salvarsan.

Dr. Blackwell asked Dr. Ellis how much hearing the patients had prior to the treatment.

Dr. Ellis: I think that Dr. Jack misunderstood me as to the frequency of these lesions of the eighth nerve occurring after the administration of salvarsan. I do not feel that there is any definite evidence that these lesions are more frequent since the use of salvarsan than before, but it does appear certain that in patients inefficiently treated with salvarsan these lesions, when they do occur, are more severe. It is this increased severity which has probably called attention to their frequent occurrence. The milder lesions, occurring in patients untreated with salvarsan, have escaped the attention of all but a few who, being especially interested in them, carefully examined all cases from this point of view. We are all familiar with the frequency of dizziness in the secondary stage of syphilis. The experience of those who have carefully investigated the hearing in these patients is that the dizziness is frequently associated with a definite disturbance of hearing and is due to a definite lesion of the eighth nerve.

Replying to the remarks of Dr. Richards: I do not think that the lesion which he has mentioned, a venous thrombosis, is the usual lesion in these patients although such cases probably do occur. We know that thrombosis of the veins in the course of syphilitic infections of the central nervous system does occur in the secondary period, but this is not the usual lesion, which is most characteristically a meningitis. I think the probability is that in these disturbances of the eighth nerve the lesion is one secondary to such inflammatory reactions in the meninges rather than thrombosis of the veins. Regarding the portion of the nerve which is involved in these cases, an analysis of 150 cases collected by Benario showed that about 50 per cent of the cases have both the vestibular and cochlear branches affected, while in the other 50 per cent the cochlear nerve alone is involved. Isolated lesions of the vestibular nerve have been reported but are extremely rare, there being only some five cases in the literature.

Replying to Dr. Day: Intraspinous injections of serum have not been used in the treatment of these cases.

Replying to Dr. Blackwell: The disturbances of equilibrium were subjective only in all but one patient. This patient had a marked spontaneous nystagmus, great dizziness, inability to stand, severe nausea and vomiting. Two of the seven cases showed spontaneous nystagmus.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular Meeting, February 25, 1914.

J. HENRY GUENTZER, *Chairman.*

Carcinoma of the Larynx, Tracheotomy, Thyrotomy, Radium Treatment.

DR. HARMON SMITH.

J. P., aged 55, was admitted to Dr. Smith's clinic at the Manhattan Eye, Ear and Throat Hospital, October 4, 1913. He complained of hoarseness over a period of two years, intermittent at first but continuous for the last six months. The family history was negative. The specific history was also negative. For three months previous to admission to the hospital he had complained of discomfort in the larynx with slight pain in the left ear at irregular intervals. The examination revealed a small ulceration upon the left vocal cord, around which more or less papillomatous-looking projections had sprung up. The surrounding tissues were red and indurated and the picture resembled syphilis. On October 7 a Wassermann test was made which proved to be negative. On October 28 a small piece of the growth was removed for microscopical examination which was reported as papilloma. Following the removal of the first piece the tumor increased rapidly in size and extended to neighboring tissues, which led to the belief that the growth was malignant rather than benign as reported. A second piece was then removed, which the microscope proved to be cancer. The patient was then examined by the internist to determine if operative measures could be instituted with reasonable hope of success. This examination revealed chronic kidney and heart trouble with atheromatous arteries, and Dr. Smith was advised that general anesthesia or prolonged surgical shock would be fatal to the patient. He then considered the use of radium and consulted one of the leading surgeons possessing a tube of radium of high activity, to obtain if possible his aid in the matter. This surgeon advised a tracheotomy after which the radium could be left in place as long as was necessary without discomfort to the patient and without interference to respiration. Accordingly a tracheotomy was performed under local anesthesia on November 29, from which the patient recovered quickly. At the end of a week the surgeon was again consulted relative to employing the radium, at which time a history of the case was given more in detail, from which it was determined that the employment of radium would be unavailing. Under cocain anesthesia a thyrotomy was performed on December 2, and the left wing of the thyroid was found to be uninvolved, so that the muco-perichondrium could be stripped from within the cartilaginous box and the tumorous mass together with apparently sufficient healthy tissue removed to warrant the hope of non-recurrence. The patient was permitted to swallow sterilized milk and water after forty-eight hours and during the course of his recovery lost but little in strength or weight.

About two weeks subsequent to the thyrotomy Dr. Fruedenthal was requested to apply his radium to the larynx, which was done, the tube being left in place twenty-four hours. Following this there was great induration of the tissue and the appearance of the larynx resembled a syphilitic condition. In January, Dr. Freudenthal made a second application, but at this time the tube was retained but a few hours; consequently there was no effect following it. Shortly after this it was noticed that the growth had extended posteriorly and had involved the opposite side. As a complete laryngectomy was out of the question and as radium had been of no avail there was nothing left either in treatment or surgery that justified any hope of benefit.

Dr. Smith said that he believed that an error in judgment had been committed in not making a diagnosis of carcinoma from the history and clinical conditions rather than having relied upon the negative report of the microscope and that if complete laryngectomy had been performed in the earlier stages, reasonable hope of recovery might have been entertainel, provided the shock of the operation upon the diseased heart, kidneys and circulation had not proved fatal.

Lympho-sarcoma of the Tonsil. DR. HARMON SMITH.

Dr. Smith said he presented this case and the foregoing case with a view to demonstrate two points. First, that where there is a reasonable expectation for recovery, disappointment often follows, and second, that in cases thought to be hopeless, good results are occasionally obtained.

The patient, D. R., 23 years of age, had been sent to Dr. Smith on January 11, 1913, from the General Memorial Hospital, to have removed if possible enough of the tumorous mass in his oro-pharynx to allow him to swallow and to alleviate his disturbed respiration. The tumor at that time was so large that it occluded about three-fourths of the oro-pharynx and not only hindered breathing to the extent that the patient sometimes became cyanotic, but made deglutition all but an impossibility. He had been treated with Coley's serum without any effect. The patient said he had fallen on his head when a child and after this he had had a number of epileptic fits. At one time during his stay in the hospital he had as many as twelve fits a day.

Dr. Smith did not give the patient or his family any hopes of his recovery and did not assure them that the operation would relieve the symptoms. Before operating a preliminary tracheotomy was performed, as he felt that there would be considerable hemorrhage. Operation was begun on the tumor by first inserting a row of sutures through the soft palate as close to the left tonsil and pharyngeal wall as the induration of the palate would permit. Dr. Smith said he controlled the greater part of the hemorrhage with these sutures as he went on with his incision. He then made a curvilinear resection with scissors, which was begun close to this row of sutures and then carried along the junction of the soft and hard palate over to the right tonsillar mass, and embodied in the part removed the uvula and three-fourths of the soft palate. Then the base of the right tonsil was attacked by blunt dissection from below upwards, enucleating the tumor from what looked like a capsular formation. This was not difficult until the upper part of the tonsil and pharyngeal wall were reached, when it became necessary to cut away with scissors the part of the pharyngeal wall upon which the tumor had encroached, which extended up almost to the Eustachian prominence. Dr. Smith said he had expected severe hemorrhage, but after tying off a few bleeding vessels the oozing was easily controlled by hot boric acid applications. He cauterized some of the indurated soft palate with the Paquelin cautery, which successfully controlled the hemorrhage in that region. The tracheotomy tube was left in place for a few days as a recurrence of hemorrhage was feared. The patient made an uneventful recovery.

He was not again seen in the clinic until January 27, 1914, at which time he showed every evidence of increased constitutional vitality and was able to breathe and swallow without hindrance. The tumor did not recur and at its site could be seen a clean, white scar, but on the left side, running up behind the palate there was a bluish-red linear mass, which Dr. Smith believed to be a recurrence of the growth. After making two fulgurations to the lesion without any effect he removed, under cocain, as much of this growth, with the galvano-cautery knife, as could be removed without extensive procedure, and under the microscope the specimen proved to be lympho-sarcoma. The patient told Dr. Smith that he had had no more epileptic fits and was able to carry on his work.

After taking into due consideration the good effects following the first operation it seemed perfectly justifiable to Dr. Smith to make an attempt to radically remove the smaller growth of the opposite side.

Dr. Myles said that he did not really understand what the pathologists meant by polypoid degeneration. It is very common in these cases to see the so-called flat or semi-pendulous polypoid condition return to normal after the venous circulation is restored and the congestion and pressure are relieved. The pedunculated type creates a pathology of its own, and remains in that condition until removed by surgical procedure.

Case of Streptococcal Pan-sinusitis; Meningeal Irritation; Acute Multiple Arthritis. Dr. J. H. Abraham.

Miss M., age 35, trained nurse; patient reports no serious illness whatever previous to November 24, 1894, when she was operated on for removal of her right kidney on account of abscess. Left hospital on December 31, 1894, in good condition.

Present history: Patient was taken ill December 1, 1913, with a severe cold in the head, followed by sharp, darting pains over the eye and frontal region on right side, with a high temperature and pulse. A profuse purulent, yellowish, thick discharge on right side of her nose, with a distinct disagreeable odor lasting from four to five days. During this time she was under the care of her family physician who requested that he be allowed to call a specialist in consultation. On December 6, owing to her condition not improving, she consented, and I was called in consultation.

On examining the patient I found the right nasal cavity filled with a thick, yellowish, purulent discharge, and on examining the post-nasal space, no pus could be detected flowing from the sphenoidal cavity. Pain over the right supra-orbital and frontal region on pressure. Temperature 103°, pulse 120. Diagnosis of right frontal, ethmoid and antrum empyema was made. After a thorough cleansing of the nasal cavities a free discharge from the frontal, ethmoid and maxillary sinuses was found; so I ordered local applications of adrenalin, steaming of the head every three hours and internal medications; this was followed by a slight improvement as to character and amount of discharge. I examined her again on December 14 and found symptoms of meningeal irritation were present as follows: There was slight photophobia twitching of the muscles of the neck, disturbed sleep; patient moaning and very restless, with slight twitching of the muscles of the body and excruciating pains in the back of the head. On December 15, patient was ordered to the Polyclinic Hospital for operation. Owing to the fact that a unilateral nephrectomy had been performed and the remaining kidney was in a cystic condition, a general anesthesia was out of the question. Pus examination from the nose proved the presence of practically pure streptococcic growth from which an autogenous vaccine was made. Owing to the poor physical condition of the patient a general anesthesia was contra-indicated. Therefore, one hour before operating, the patient was given hyperdermically ¼ morphin and 1-150 of hyosein. Local anesthesia, adrenalin and cocain. I was positive from the above symptoms that the patient's most serious involvement was of sphenoidal origin. Even without the presence of any pus in the post-nasal space, I decided to enter the sphenoidal cavity; so after removing the middle turbinate I found the anterior wall of the sphenoidal sinus very red, excruciatingly tender, and markedly bulging without any free flowing of pus. The sinus was opened, and pus was discharged under great pressure and quantity. The ethmoids were next attacked and owing to the marked involvement the septa between the various cells were broken down, converting the cells into one large sinus, which was opened. The pus flowed freely, but under no pressure. The cells were removed as far back as the sphenoid. The naso-frontal duct was enlarged and pus flowed freely from the frontal sinus. Owing to the weakened condition of the patient, it was necessary to open the antrum very hurriedly, which accounts for the removal of a greater portion of the anterior end of the inferior turbinate than I usually find necessary. The antrum was opened through the inferior meatus and pus flowed very freely In all, at a rough guess, I should say there was removed from the various sinuses at least one-half tumbler full of pus. I must admit that the operation was a little more painful than ordinary, which I can account for by the great involvement of the various sinuses and by the fact that the pus was under such great tension, which undoubtedly prevented the absorption of the local anesthesia. The cavities were syringed, no packing employed, patient returned to bed. On the evening of the same day, the patient complained of severe pains under the ball of the right foot, and on the following day both feet and right knee were very much swollen, and on the day following she complained of pain in the elbow and wrist. Local applications of oil of wintergreen were applied with cotton dressings and intra-venous pyramidon, salicylate of soda and strychnin were administered On December 18, patient received the first vaccine, which was followed by the usual reaction. After intra-nasal syringing of the various sinuses, the discharges from the nose were very markedly decreased, also all pains in the head and neck. Patient continued to improve and left the hospital in ten days, and resumed her vocation January 22. At present, patient is free from all nasal discharge and arthritic symptoms and seems to be enjoying very good health. The case to me is an extremely instructive one, owing to the meningeal symptoms plus arthritic involvement, possibly streptococcal, the latter infection no doubt was secondary to the intra-nasal lesion.

Intra-venous injections of Colloidal Copper and Mercury in the Treatment of Two Inoperable Cases of Carcinoma of the Larynx and Tongue. DRS. C. JOHNSTONE IMPERATORI and HARMON SMITH.

When patients present themselves with carcinoma of the upper respiratory tract, recognized to be beyond surgical relief and therefore unquestionably beyond the reach of radium, x-ray and other therapeutic measures, the physician is frequently willing to adopt any procedure that may possibly offer either relief to the sufferings of the patient or delay the advance of the disease. Having noted the report of Loeb* and his associates concerning the treatment of cancer by the intra-venous injection of colloidal copper, it appeared that a decided advance had been made in the therapy of cancer and warranted experimental use of the same in this class of cases. We are indebted to the direction and services of Dr. Silas P. Beebe, of the Loomis Laboratory of Cornell University, for the preparation and direction in the administration of collodial copper and mercury in the two cases whose histories follow.

A brief resume of the method of preparation of the colloidal copper is as follows: An electrical current of 110 volts, 5 amperes, is passed between pure copper electrodes, which are immersed in pure distilled water, which has recently been boiled to drive off all the gases and air contained therein. The current between the electrodes must produce an arc, but not touch each other. After passing the current through the water for a short time, it assumes a milky appearance. To standardize the solution, determine the amount of copper by evaporating 25 ccm. of the solution nearly to dryness and add a drop of dilute sulphuric acid to this residue; the blue color resulting is compared with the standard Fehling solution. The solutions used contained approximately 3 milligrams of copper per 100 ccm. The colloidal mercury solutions are prepared in the same way, except that one electrode is of pure mercury and the other of platinum, the latter representing the positive pole. The strength of the mercury solution is 18 milligrams of mercury per 100 ccm. of solution. The metals are in such a finely divided state that they remain in solution for some time, but there is an element of doubt as to whether this method produces a satisfactory colloid, although it is the procedure pursued by the originator.

Fresh solutions of the colloidal copper were supplied each day. The mercury solution, which keeps better, was supplied every other day. Before injecting either of the solutions they were warmed to the body temperature. The first injections were made into the dorsal vein of the hand and each vein of the arm was employed, proceeding from below upwards, the injection being made in each instance just in advance of the former. Usually a local endo- or peri-phlebitis took place at the site of the injection. An attempt to inject below the site of the former injection invariably resulted in failure even though the veins appeared to be fairly well filled with blood and the flow through the inserted needle demonstrated the presence of blood in the vein. In a few instances the tip of the needle penetrated the venous wall and the solution was injected into the surrounding tissue, which caused a circumscribed area of edema, followed by induration, that lasted for some time. On three occasions the surface veins which had been previously injected were exposed, and the needle inserted within the lumen of the vein, but it appeared to be entirely obliterated. Following the injection of either copper or mercury solutions, the patient frequently became restless for a period of one to two hours. In all injections of over 250 ccm., the kidneys seemed to be actively affected, so that free urination resulted. The blood pressure was increased by the injection, from 10 to 30 milligrams of mercury, when the larger amounts of fluid were injected. The average length of time employed for an injection was about twenty minutes, when using 500 ccm. of the solution, but towards the end of the period when injections were made, the time was often extended to one hour, owing to the difficulty in reaching the surface veins.

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*Loeb, McClury and Sweek. "Treatment of human cancer with intravenous injections of colloidal copper." Interstate Med. Journal, Vol. 29, 1912, p. 1015.

Case I: P. C., male, aged 45 years, iron worker, was admitted to our clinic at the Manhattan Eye, Ear and Throat Hospital, December 31, 1912. His family history was negative as regards cancer. The past history revealed a history of syphilis twenty-nine years previously for which he had been treated only a short time. He had been married for a number of years to a healthy woman, who had, however, never become pregnant. He had been an inveterate pipe-smoker and a heavy drinker. About two years before coming to the hospital he had noticed a thickening on the right margin of the tongue which has gradually extended, involving the entire tongue. Eight months previously he had begun to lose weight and during this period has lost over thirty-four pounds.

Physical Examination. General. The patient was a small, emaciated man, appearing to be about 60 years of age. His pulse was 88, temperature 99°, respiration 20, blood-pressure 160, with a moderate arteriosclerosis. Urine showed a faint trace of albumen with a few granular casts.

Special Examination. The tongue protruded slightly from the mouth and was fixed. Situated on the floor of the mouth, mainly on the right side and extending down to the region of the hyoid bone was a large mass of stony hardness. There was a superficial ulceration of the skin just above the hyoid bone. The epiglottis was infiltrated and edematous. The vocal cords revealed no apparent involvement. The superficial and deep cervical lymph nodes and all the glands of this region were enlarged on both sides of the neck. The diagnosis of epithelioma was made both from the history and general appearance and confirmed later by microscopical examination of a piece of the tissue.

Treatment: The first intravenous injection was made on February 4, at which time 15 ccm. of colloidal copper was injected. Daily injections were then made in increasing doses, until on March 13, 500 ccm. was given. Twenty-five injections of the colloidal copper were made in all. On April 6, not having given any colloidal copper for over three weeks, it was determined to try colloidal mercury, 5 ccm. of which was injected directly into the tumor. After two days this procedure was repeated. No apparent benefit resulted. The Wassermann and Noguchi reactions remained positive throughout the time the patient was under consideration; also the blood-count remained fairly constant, the average red cell blood-count being 4,000,000 per cm., and the hemoglobin about 50 per cent. The average temperature was about 100°, with an occasional elevation of from one to two degrees. On April 17, the patient refused to have any more injections and was permitted to go home, where he died in the early part of June.

Case 2: T. G., male, 64 years of age, carpenter by occupation, was admitted to our clinic at the Manhattan Eye, Ear and Throat Hospital, April 22, 1913. The family history was negative. Past history presented no evidence of venereal or throat trouble. Had had malaria two years previously. At times had been a heavy beer-drinker and a moderate smoker. Present history: About six months previous to admittance to the hospital he noticed that he had difficulty in swallowing, and at times a husky voice and that he was not breathing as easily as formerly.

Physical Examination. General: The patient presented an emaciated appearance, and appeared to be considerably past 60 years of age. The temperature at time of admission was 99°, pulse 88, respiration 18, blood-pressure 165, with fairly advanced arterio-sclerosis. Examination of the urine was negative.

Special Examination: Owing to infiltration at the base of the tongue, there was considerable less of mobility in this member. From the side of the lingual tonsil there appeared a tumorous mass which extended laterally on both sides. The epiglottis was large and edematous, with a ragged left edge and the posterior surface elevated and hard. In the larynx itself the cords were thickened and infiltrated with superficial ulceration and marked loss of motion. The arytenoids were infiltrated and edematous. Both the superficial and deep servical lymph nodes were enlarged on both sides, the left being the most marked. Diagnosis ot epithelioma of the base of the tongue, epiglottis and larynx was made by the history and appearance of the growth and confirmed by microscopical examination of removed tissue.

Treatment: On April 29 and 30, 30 ccm. of colloidal mercury was injected intravenously. Following this, 50 ccm. was injected each day until the tenth injection, when this amount was increased to 100 ccm., the actual amount of mercury in solution remained the same. The injections were now given on alternating days because the patient again showed signs of salivation. In all, sixteen injections were given, covering a period of twenty-seven days, with an interval of six days between the seventh and eighth injection, due to marked symptoms of mercurialism. After the sixteenth injection, the patient again became salivated and the general appearance of the growth being unfavorable the injections were discontinued. About this time the glands of the neck became much larger and one had reached such size and produced such discomfort that it was deemed advisable to remove it. Microscopical examination of this gland showed it to be carcinomatous. At the period of the first salivation, glucose appeared in the urine to the amount of .04, determined by the fermentation process. Glucose continued to be present until the administration of the colloidal mercury was discontinued. In the later stages the urine showed 1.5 grams per liter of albumen, with granular and hyalin casts. Considering the fact that examination of the urine upon admission to the hospital was negative, it is reasonable to conclude that the injections brought about the albuminuria, and other kidney disturbances. The temperature during the period of salivation was about 100° Fahrenheit, but at no other time was there a variation above normal of more than three-fifths of a degree. Both Wassermann and Noguchi tests were positive, each having been made twice. The blood-count showed a moderate anemia, the average red cell count being 4,500,000 per centimeter, and the hemoglobin, 50 per cent. In consultation with Dr. Beebe it was proposed that an injection of an extract of the gland removed from near the tumorous mass should be injected, but the patient refused to submit to the operation. After May 29, at which time the injections were discontinued, until the patient's discharge, June 16, it was necessary to administer opiates to procure rest. The patient died June 23, one week after leaving the hospital.

Conclusions: In the case of cancer of the tongue, the injection of the copper solution seemed to stay the growth for a period of a few weeks, but rapid disintegration of the mass soon after they were discontinued leads one to doubt if the solution was the cause of the retardation of the tumor or if perchance it was one of those non-progressive periods that occur in cancerous growths in which the ravages of the disease seem to be temporarily stayed. The colloid mercury seemed to have no effect on the tumor whatsoever. As regards lessening pain or increasing the function of the part, no benefit can be said to have been derived from the administration of the colloids. The amount of time necessary to administer the solution, the negative effect on the tumor, and the pain and discomfort experienced by the patient incident to the injection apparently do not warrant its administration, either in the hope of a cure or even in the expectation of its acting as a palliative measure. A specific influence of colloidal metals on cancer cells in the human body is yet in doubt and from the experience gleaned from these two cases, it would appear more human to ease the last days of the cancerous patient by sedatives than by the futile use of colloidal metals.

Report of a Case of Tuberculoma of the Larynx. DR. C. JOHNSTONE IMPERATORI.

This patient, J. C., came to the Manhattan Eye, Ear and Throat Hospital and was admitted to the clinic of Dr. Harmon Smith, January 27, 1911. Family history is negative. Previous history: Has always been in good health up to a year ago, when he spat up some blood and within a few days became hoarse. He denies lues. Status praesens: Complains of hoarseness and at times loss of voice. There is no pain. Has no difficulty on swallowing. Very little muco-purulent expectoration. Physical examination: Chest shows slight prolongation of expiration at the right apex more so than normal There are no rales. Heart negative. Larynx: Ulceration of the right vocal cord and ventricular band, with marked infiltration of both. There is an over-growth of tissue on the anterior commissure, mainly on the right side. Considerable loss of motility of the right cord. Wassermann negative. On January 31, several pieces of tissue were removed from the region of the anterior commissure for pathological examination. The report from the laboratory was that the mass consisted of granulation tissue. Again, February 14, a few days after the report was made, more tissue was removed from the same region indicated above and the report from the pathologist was that the tissue submitted for examination was tubercular. Examination of scrapings taken from the ulceration and the neighboring region was negative as regards tubercle bacilli. The case shows the difficulty of diagnosticating clinically between tuberculosis and syphilis of the larynx. Clinically, the diagnosis would be syphilis. The depth of the ulcer, the raised edges and the surrounding area of inflammation being more regular than in tuberculosis. There is no edema of the ary-epiglottic folds. Regarding treatment, the infiltration being sufficiently large to produce dyspnea, it was removed and the ulceration cauterized with the silver bead. This was done ten days ago. The results are very good as regards breathing and phonation. Regarding the diagnosis, there is still an element of doubt, from a clinical standpoint, whether this is a luetic or tubercular lesion.

The patient will be observed after the injection of tuberculin and then after the application of the therapeutic test—that is, the adminstration of potassium iodid.

DISCUSSION.

DR. FREUDENTHAL, referring to the first case presented by Dr. Smith, said that it was a very interesting case to him, and emphasized the fact that one should not rely upon microscopical diagnosis in such cases unless it be positive. If the history and clinical diagnosis indicate cancer, you may be sure that it is cancer. He had seen a case where large sections had been removed three times and every time the microscopic diagnosis was papilloma. That case had been shown before the section in the fall, and was operated upon by Dr. Torek for carcinoma. The operation was very satisfactory but we must not be surprised if we are disappointed, for carcinoma will recur, whether we do a laryngectomy or not.

He had always felt that Dr. Smith was right in trying to remove as much of the necrotic tissue as possible and leave the man as much of the larynx as he could, although the majority of the men did not agree with this.

DR. THURBER, referring to a case of sarcoma of the tonsil at the Vanderbilt Clinic that he had recently seen, laid emphasis on getting enough of the growth for microscopic diagnosis. The first portion removed in this case showed no malignancy and the growth was taken to be a primary syphilitic lesion by many of those who saw it, but on further examinations the tumor was reported to be a large, round cell sarcoma. The patient was 42 years of age; the growth gave him no discomfort except for its size. On removing it, the lack of hemorrhage was a feature that corresponded to that of the case reported to-night. The tumor was very friable, yet had a gritty hardness. As the tonsillar capsule was not removed, recurrence was expected and watched for and occurred in three weeks, when the patient was referred to Roosevelt Hospital for a radical operation.

Dr. Guttman said that he was very much interested in Dr. Abraham's case, and the result was most satisfactory, but he did not understand why the medical procedure followed by Dr. Abrahams was not the usual one. In a case like this, following acute influenza, is not the usual procedure the removal of the middle turbinate, and, if that is not satisfactory, then to go to the antrum, the ethmoid, and then the sphenoid? He would like to know Dr. Abraham's reasons for beginning first with the sphenoid.

Dr. Abraham thought Dr. Guttman had misunderstood his report of the case. He had stated that the patient was doing so well under simple treatment that it seemed unnecessary to operate. He did not see the patient for several days and on his return found her suffering from symptoms of marked meningeal irritation, and she was placed in the hospital. He was certain that the sphenoid was involved. The middle turbinate was removed, and the sphenoid was opened, and pus under great pressure was evacuated. The ethmoids were practically all one cell, and were filled with pus; the naso-frontal duct was enlarged and the frontal drained. The operation lasted three-quarters of an hour and the patient was getting very weak. The operation had to be performed with great rapidity, and he removed more of the antrum end of the inferior turbinate than he usually does. All the operative procedure was done at the one sitting, the sphenoid being the main point of attack. The subsequent findings justified this action. He was somewhat thrown off the track in this case, for in his experience in such cases the pain is usually at the apex of the head. This was only the second instance where the pain has been at the base of the skull, near the junction of the spinal column,—which would lead one to believe that the pain was of a different character. The sphenoidal pain is usually at the apex of the head, not at the base.

The Medical and Surgical Aspects of Oral Sepsis of Dental Origin.

Dr. William Henry Haskin.

This paper was in line with Dr. Haskin's paper on "Cryptogenic Infections of the Alveolar Process," read before the Eastern Section of the Rhinological, Laryngological and Otological Society, in January, and published in The Laryngoscope, March, 1914, p. 169.

DISCUSSION.

Dr. Henry W. Gillett said that he had been addressing a dental meeting in the adjoining room and regretted not having heard Dr. Haskin's paper. Dr. Haskin had, however, read part of it to him the evening before and he knew the general drift of it. He had also seen Dr. Haskin's pictures, and if time allowed, could talk about them indefinitely.

In a general way, he was very much in accord with Dr. Haskin on this subject, and it was a source of great satisfaction to the dental men who are interested in the matter from the standpoint detailed by Dr. Haskin, that the medical men are beginning to realize what is going on in the mouth. Dental men have been talking about this in dental societies for years, but it has been very uphill work to get the medical men interested. It has not seemed to occur to many of them that the mouth is the beginning of the alimentary canal. For some reason there has been very little co-operation between the dentists and the physicians in this direction, and this has been greatly to the loss of the patients, both those who consulted the dentists and those who consulted the physician.

This matter of pyorrhea alveolaris is one of great importance to your patients. Many secondary infections come from this cause, and it should be easy for any of you to distinguish many of the common foci of infection in the mouth. An hour or two spent with a competent dentist, who could demonstrate a series of mouths, would enable any physician to detect them without difficulty, to know whether or not any dentist to whom he had referred a patient knew what he was talking about when he reported a patient as being sound in that respect.

Unfortunately, there are a great many men in the dental profession who disregard these conditions and do not give them the attention they should receive. In any mouth, if you find a red, congested gum-margin, which, on pressure, discharges pus, you may know that there is something seriously wrong.

Dr. Haskin is entirely right in his statement concerning the value of the x-ray in dental work. Any dentist who is in the habit of having many cases x-rayed, or who is a progressive man with an x-ray outfit in his own office, can duplicate these pictures by the dozen, showing the same general conditions which Dr. Haskin has thrown upon the screen. Recent research work by men connected with the dental profession has developed convincing evidence of their great importance. It is the ordinary everyday experience of the dentist who is keen on these things to be told by patients that rheumatic disorders have disappeared subsequent to clearing away of pus foci from the mouth. That coincidence so often happens that dentists who are keen on the subject expect that result.

Dr. Haskin referred to persons who do not properly cleanse the mouth. Many of them cannot be induced to do so. It is one of the astonishing facts, familiar to the dental profession, that medical men are among the worst offenders in this respect. It is common knowledge among the dentists that the mouths of medical men average worse conditions than in any other set of people of like intelligence. It is not to be expected that a man who takes that view of his own case would be interested in his patient when a dentist calls attention to it. It does not seem possible that you gentlemen realize what is going on when a dentist reports to you that a patient has pyorrhea alveolaris. Do you realize that there may be around the root of a single molar tooth the equivalent of a square inch of ulcerating surface; that in a single mouth there are often two or four square inches of ulcerating surface; that each closure of the jaws forces septic material into the circulation? What do you do when a patient comes to you with an ulcerating surface anywhere else? You pay attention to it with great promptness; and yet patients come to you who should have the very best medical service obtainable, but from lack of co-operation are having service that is spreading infection through the whole system.

There is need for more co-operation between the two professions in this respect. I adopt the rule now, to take cultures from pus foci in the mouth and report the findings to the patient's physician whenever it is possible to do so.

There is a great deal of carelessness in the dental as well as in the medical profession. We have to deal with men who are uneducated, and with others who are educated and disregard the facts, but there is a class of dentists who are interested in this work and who are ready to co-operate with you, who welcome the responsibility it entails and the evidence that the medical men are waking up to the conditions existing in the mouths of many of their patients.

Dr. E. A. Bogue expressed himself as greatly pleased to find his fellow members of the medical and dental professions waking up to the great importance of a subject which so greatly concerns them both, and told of a lady whose name was well known to most of those present who had, some years ago, brought her little daughter to him, saying that she had taken the child to a well-known children's specialist to find out why her gums bled so excessively every time she ate. The specialist, who is even better known than the child's father and mother, had treated the condition as a matter of no consequence. On examining the child, who was only 4 years old, he found to his astonishment that she had pyorrhea, which he has never before nor since seen in so young a person. So, when confronted with instances of crass ignorance on the part of some dentists, it is only fair to conclude that there is some of the same quality elsewhere.

Dr. Haskin had probably not meant to show all of the conditions which cause necrosed alveoli, for many such conditions exist where no pus is visible, but he came very close to telling why a blind abscess exists or what causes it. Dr. Bogue said that he would very much like to know whether the pulps in these teeth were recognized as being invariably dead, or not. It seems to be Mother Nature's method of endeavoring to throw off a foreign substance, and that is the *ubs cedo*.

He noticed that Dr. Haskin had used rather indiscriminately the words caries and necrosis, but in either event he was right in directing the attention of medical advisors to cases in which either the one or the other condition is present. Furthermore, there came into his remarks the question of whether or not pyorrhea alveolaris can be prevented. Dr. Bogue said that within the past forty-eight hours that question had been asked him by a man who had "suffered many things of many physicians and was none the better." Among other things, he had suffered the loss of his two upper lateral incisors and one first lower molar, which left the upper dental arch smaller than the lower, instead of larger. Dr. Bogue said that he had replied to this gentleman that it was impossible that he should ever again have good articulation of his teeth; and as long as that was done with, it was impossible that he should have automatically, physiological cleanliness of his dental organs, even if he went back to Mother Nature's method and ate no cooked food as Nebuchadnezzar did, for there would still be little corners which would be filled up with deposit which could not be removed by the movements of mastication or the tongue.

Dr. Bogue recommended to him the use of a tufted or serrated brush as the best means of keeping the teeth free of deposit after eating. One must not only fight against decay of the teeth, but against deposits of various kinds, including the calcareous ones which originate pyorrhea by acting as foreign substances, causing the gums to form pus in order to throw them off. The brush should be serrated in order to reach into the interstices of the teeth. Dr. Bogue described how it should be used, in a rotatory manner, thus brushing the teeth up and down and the gums as well. After the teeth have been cleansed in this way as well as possible, raw silk should be passed between the teeth, simply to act as a little towel to complete the cleansing. If this is done regularly and the dentist is visited periodically so that the necks of the teeth are kept smooth and polished, the gums will show a smooth, hard surface and there will be no pain nor bleeding.

Dr. M. L. Collins took exception to what Dr. Haskin had said about blind abscesses. If he understood correctly, Dr. Haskin said he did not believe there is such a thing as a blind abscess. The last photographs thrown upon the screen were taken from dry specimens; there is no doubt that if these same specimens could have been seen with the soft tissues intact, they would have been all fistulous, the discharge entering the mouth. I agree with Dr. Haskin; these are not blind abscesses. But what should be said about those spaces at the apices where the radiograph shows destruction of bone which are not fistulous. In these cases, if the soft tissues are punctured and so on through the outer plate of alveoli, we at once plunge into an abscessed cavity. I have seen hundreds of such cases and would certainly call these blind abscesses.

Dr. Haskin replied that that was the point at issue. He could not believe that they are so. He felt confident that if one could examine them all around with a microscope that a small tract would be found. He is not a dentist, but it does not seem possible that they should be absolutely closed.

Dr. Collins replied that if there was much of a tract there would be a discharge, and if there was a considerable tract this would not then be a blind abscess, as would be apparent from the radiograph. There was no doubt in his mind that the blind abscess is a fact, the discharge of which gets into the blood-stream. He was very glad to have heard the paper and to know that these matters are being studied by physicians, as well as by dentists.

Dr. Abraham said that he had had considerable experience with empyema, following abscess of the root of the tooth, and one case would illustrate the experience of many. A patient, who had a discharge of a purulent character, had been referred to him from a neighboring city. This patient had had the nerve of a tooth killed and the tooth filled. He referred her back to her dentist with the diagnosis of empyema of the antrum, following an apical abscess. The dentist was positive that there was no apical abscess. Dr. Abraham said that he had made his diagnosis from a radiograph and told the patient that the tooth had to come out. The dentist insisted that it should not be removed. Finally the patient was sent to Dr. Hasbrouck for the tooth to be extracted, with the request that he pay particular attention to the condition. When the tooth was removed, a typical apical abscess, surrounded by necrosed bone which discharged into the antrum, was found. When Dr. Hasbrouck extracted the tooth he removed the necrosed bone surrounding the tooth. This opening was immediately closed and the antrum was then opened intra-murally, and a pyogenic membrane covered by a polypoid mass was found. This was curetted gently and the cavity was treated with argyrol solution. The patient was discharged in three weeks, after having suffered for years. The dentist admitted his error and complimented Dr. Abraham on his diagnosis. This was the history of but one of many similar instances. Dr. Abraham stated that he did not pretend to say what was the cause of this necrosis at the base of the tooth, but it was certain that these conditions follow very often after a nerve is destroyed and the tooth filled.

Dr. Bogue told of a physician who had brought a patient to him when he first came to New York, saying that penetration of the antrum was suspected owing to the death of the tooth pulp. Examination showed that the tooth was in the antrum and that there was an abscess so offensive that marriage had been postponed. The patient, however, still had the tooth when last seen. She was a young lady then, but her son is now on the Board of Health.

In reply to an inquiry as to how it was cured, Dr. Bogue said that he managed to secure an ingress and egress by making one hole through the tooth into the antrum, and another through the canine fossa. When this case was reported in England, Charles Tomes, of London, shook his head and said that the success in this instance justified the means, but that the method was entirely wrong. Dr. Bogue said that it could not be done every time, but he simply mentioned it as a case that did occur. Dr. Bogue said that he had successfully treated very many cases of abscessed roots, even going so far as to extract the tooth and replace it in the socket, after amputating the necrosed end of the root.

Dr. Danziger said that the paper was a most important one, as it had a tendency to change our views very considerably on the question of cryptogenetic sepsis. Discussions in future will not be only what mode of removal of tonsils should be employed, but rather, look for the focus of infection in the mouth, nose, or teeth, and rather regard the enlarged tonsils as a secondary inflammation of a lymph gland.

Dr. Myles said that it would be a great advantage if our methods of diagnosing peri-odontitis could be improved. It seems probable that the proportion of antral cases due to tooth infection has been increasing in the last ten or fifteen years on account of the improved dentistry. Anyone who submits to the process of saving his teeth by having the nerves killed, or who retains an old tooth with a dead nerve in it, runs some risk, because there is probably some pathogenic condition in and beyond the root-end. He had observed this in a great many instances where the tooth was extracted. He objected to the way in which many have their teeth saved and take the risk, and then blame the dentist if trouble ensues later.

Dr. Haskin thanked the gentlemen who had discussed the paper and expressed his high regard for the men whom he knew in the dental profession who were far better informed on this subject than he could ever hope to be. When you meet a good dentist you can pin your faith to what he says.

Dr. Bogue had spoken of pyorrhea in a young child Dr. Haskin said that last week he had seen a child, 11 years of age, with a fearful pyorrhea, who had been under the care of a well-known specialist. The child had the usual discharge, and all the pockets were full of streptococcus infection. The child is now under vaccine treatment, and it is hoped that that will help cure the condition after the teeth have been cleansed.

Replying to what Dr. Bogue had said about the causation of apical abscesses, Dr. Haskin said that he had stated in the paper that he believed they were caused by inflamed pulps, improper handling, or some blow,—traumatism but that the great majority were due to inflamed pulps.

The main reason for directing attention to this question of oral sepsis is that the medical profession have done wrong in neglecting these conditions. If they are observed early, and the defects of mal-occlusion and over-crowding are appreciated and checked in the beginning, the pyorrhea could be prevented, just as early attention to nasal obstructions prevents the horrible conditions that are often seen in later life. They cannot be overcome in the older men and women, for they have existed too long and atrophy has taken place. Many times the teeth must be taken out, for it is impossible to check the condition. If one is on the look-out for the condition, however, and gives it attention early it can be stopped.

Regular Meeting, March 25, 1914.

Pansinusitis. DR. JOHN E. MACKENTY.

About seven years ago the patient had what she considered to be a constant cold in the head, and she had nasal trouble up to two years ago when she was admitted to St. Luke's Hospital. Examination revealed that her nose was full of polypi, and she was operated upon without much relief. Later, she went to the Presbyterian Hospital and was again operated upon without relief. Her chief complaint was asthma of a very severe type. Then she was sent to the Manhattan from the Presbyterian Hospital and it was thought she would die of her asthmatic attacks. Dr. MacKenty said that he wanted to do an intra-nasal operation but was convinced that it would not do any good; and as he was afraid to let her go on with the asthma he did a double radical external operation. One side healed nicely. The other side (right) failed to heal and went on suppurating. Then it was decided to do a second operation on this side. No dead bone was found. The former operation was done all over again, the cavities cleansed, and the wound sewed up. The same thing occurred again, and after waiting a few weeks a vaccine was used—three doses were administered. The infection was found to be pure streptococcus. After the third dose, the condition healed like magic. The septum underwent polypoid degeneration and had to be removed intra-nasally. Dr. Dwyer made a pathological examination and reported polypoid degeneration.

After the first operation the patient had no attacks of asthma for about ten weeks, and then the septum took on a degenerative process. As long as the nose is kept free from scabs, she has a great deal of relief, but when it gets full of scabs she has the asthma again.

The case is reported: First, to show the quick effect of vaccines when a good culture is obtained; second, to show the more or less rare polypoid degeneration of the septum; third, because of the severe type of asthma, which was almost fatal.

The last dose of vaccine was given about ten days ago. The first operation was done on December 18; the second, on January 15; the third, removal of the septum, on March 5.

DISCUSSION.

Dr. Dwyer said that this case was interesting in that after the operation a pure streptococcus culture was obtained, which is rather rare. If we can get down to bed-rock and get a culture, we can do a great deal with vaccines. It must be borne in mind that with polypoid degeneration of the septum or of the floor, non-pedunculated and bleeding very freely, we have to look out for secondary degeneration and sarcoma, which is quite common in areas that undergo polypoid degeneration first. Dr. Dwyer said that he thought the eosinophiles here were accidental in the blood. There are generally an indication of trichina or some sort of protozoa, so that in this case it seems to be an accidental secondary bacteria.

Dr. Cocks asked Dr. Dwyer if he thought that polypoid degeneration in the nasal accessory sinuses, such as the maxillary antra, is especially apt to be followed by the development of sarcoma.

Dr. Dwyer replied in the affirmative.

Dr. Myles said that he did not really understand what the pathologists mean by polypoid degeneration, for it is a very common thing to see a so-called polypoid condition in these conditions which, when the venous congestion is relieved and the pressure removed, comes back to normal. He has seen a septum resembling the polypoid condition which passes away, and operations on the cribriform plate that have caused edema which pass away when the circulation is re-established. So it is a question of what one would call polyps.

About fifteen or twenty years ago it was his custom to report cases where the antrum was filled with polypi. Most of them grew from the upper part of the cavity and in many instances they would disappear when the general pressure and circulation were relieved by operation. It is astonishing what large ones will disappear. Many of these tissues when submitted to the pathologists would come back with the same report. It is a question of what is a true polyp—whether it is capable of going back to normal. It would seem that most all flat polyps have that power.

Chronic Frontal Sinusitis Suppuration Complicated by Epidural and Orbital Abscesses. Dr. Gerhard H. Cocks.

The percentage of deaths in epidural abscess complicating frontal sinus operation is so high that we are perhaps warranted in reporting such a case if the outcome is successful.

The patient, an Italian, 31 years of age, was referred to Dr. Chappell's clinic at the Manhattan Eye, Ear and Throat Hospital on December 8, 1913. The family and previous history throw no light on his present illness, except that he had grip about fifteen years ago. For the past ten years he has suffered from post-nasal and nasal discharge, mucoid in character About three or four months ago the patient first noticed a swelling at the inner angle and roof of the orbit. This gradually increased in size. At the time of admission, the swelling was about the size of a twenty-five cent piece. There had been some frontal headache, but no discharge of pus from the nose.

When first examined no pus was found in the nose. Two days later a slight amount of pus was detected in the middle turbinate region. The globular swelling at the inner angle of the orbit showed fluctuation. An x-ray examination demonstrated a cloudy right frontal sinus with a thickening at the margin of the orbit. This thickened area was later, at operation, shown to be the site of perforation into the orbit.

An external operation was performed on December 10, 1913, with the usual skin incision through the eye-brow and down on the side of the nose. When the periosteum was incised there was a gush of pus. A defect, about the size of a five-cent piece, was found in the roof and inner wall of the orbit where the latter communicated with the frontal sinus. The frontal sinus cavity was filled with thick yellow pus. In the posterior plate of the frontal sinus were two defects in the bone, the larger of which was the size of a twenty-five cent piece. The dura was here discolored and bathed in pus. The diseased ethmoids and sphenoid were next exenterated and the middle turbinate was removed. On account of the exposed dura it was deemed inadvisable to attempt to save any part of the anterior bony wall of the frontal sinus or the remaining portion of the bony bridge. This bone was therefore removed and the cavity was packed from the bottom with iodoform gauze. Two or three sutures were placed in the outer angle of the wound, but it was found necessary to remove them a couple of days later on account of a skin infection.

On December 30, 1913, twenty days after admission, the patient was discharged from the hospital, but returned to the clinic for dressings. On January 19, 1914, the patient begged to have a smaller dressing applied so that he could use both eyes for his work. The gauze dressing was therefore discarded and a cotton-collodion dressing placed on the skin wound. Two days later he developed facial erysipelas. The wound is now practically closed and the nose is almost entirely dry.

A culture taken from the pus at the time of operation showed a capsulated diplococcus. There is, naturally, considerable facial deformity, but the patient is unwilling to subject himself to any further surgical procedure for its relief. There has been no diplopia, in spite of the extensive removal of bone.

DISCUSSION.

Dr. Carter thought that a good deal of the scarring could have been avoided if intra-nasal drainage had been established. Several cases that he has operated upon have been drained very satisfactorily by greatly enlarging the naso-frontal duct; this greatly reduces the scarring.

In this extensive case where there was considerable bone necrosis drainage in this manner might not have been possible.

Dr. Myles commended Dr. Cocks' procedure and thought that it gave the patient a better chance of recovery. He would have had a deformity anyway, so far as the depression was concerned, and Dr. Cocks did the sane thing in allowing it to heal over in order to cure the patient, and then use some method to improve the scarring afterward. The scar was nothing in comparison with the results obtained.

Dr. MacKenty agreed with what Dr. Cocks had said about the drainage. Exposure of dura is not serious providing free drainage is used. If Dr. Cocks had made the avoidance of the deformity his first object he would probably have lost his patient. It would seem that the success was due to the drainage employed.

Dr. Guentzer asked if the picture was not clearer than one would have expected with all the complications.

Dr. Guentzer recalled the case of a negro woman with a complicating frontal sinusitis. On operation there was a good deal of specific necrosis of the posterior frontal wall, exposing the dura, but the woman went on to recovery without any particular symptoms. The exposure of the dura did not seem to make the case any more severe than usual.

Dr. Cocks said he was glad his case had aroused such general discussion. Like Dr. Myles, he feels that packing the wound so as to make it heal from the bottom is by far the safer method in such cases as the one shown.

Replying to Dr. Cocks:

Dr. MacKenty said that the success was due to the fact that drainago from the outside was used. Intra-nasal drainage seems to be a mistako in such cases.

Some Important Conditions Connected With the Sucgery of the Jaw and Mouth. Dr. Henry Sage Dunning.

To be published in full in a subsequent issue of The Laryngoscope.

DISCUSSION.

Dr. Abraham, referring to the cases involving the teeth and antrum, said that at the last meeting he had spoken of a number of such cases which had fallen under his observation. That very day he had a similar experience with a patient who had been referred to him about a week ago suffering from neuralgia which radiated into the antrum and the supra-orbital region. The patient had consulted a physician who made a diagnosis of grip and neuralgia, and treated the patient without result. The patient was then advised to consult a dentist who failed to find anything to account for the condition. The patient was then sent to an oculist who examined her carefully and failed to find anything. He suggested that the nose be examined and referred the patient to Dr. Abraham. Upon transillumination he found positive symptoms and dullness on the right side, and advised that an x-ray picture be made. The plate came back showing involvement of the antrum with an apical abscess of the pre-molar teeth. The patient was sent to a dentist to have these teeth removed, and then to be returned for further treatment. This was a typical case of a patient having a nerve destroyed and suffering subsequent pain and infection of the antrum. None of them can be cured until the diseased teeth, necrosed bone, and roots are removed.

Dr. Hays said that it is rather important for the nose and throat specialist to work more in harmony with the dentist, particularly one who can take x-ray pictures. It is of the utmost importance where one is dealing with some complex condition to be able to eliminate the teeth sockets as the source of the trouble. There are certain dentists to-day who make a practice of taking an x-ray picture before and after filling teeth, and these x-rays often show abnormalities around the roots of the teeth, or in the antrum which need attention. In the last two or three years it happened that Dr. Hays saw a number of these cases. One man whose face was very much swollen had an x-ray picture taken which showed a definite shadow over the right antrum indicating pus in this cavity, but on account of the swelling and brawniness of the tissues the diagnosis of alveolar abscess was made. An incision was made at the hospital under gas anesthesia, along the gingivo-labial fold resulting in a discharge of a large amount of fetid pus, evidently arising from a necrosis of one of the roots of the teeth. In another case in which there was a severe pain in the right cheek, transillumination of the antrum showed a definite shadow on this side. The patient had some gingivitis which awakened a suspicion of trouble in the teeth, and he was sent to a dentist who took an x-ray picture which showed a great deal of disease at the base of the teeth, and a diseased condition of the floor of the antrum. This was attended to, and the patient was relieved. When we get pictures showing antrum disease it is very probable that there is some tooth trouble which is causing the infection.

Dr. Myles said that it would be a great advantage if we could improve on our methods of diagnosing peri-odontitis. It seems probable that the proportion of antral cases due to tooth infection has probably been increasing in the last ten or fifteen years on account of the improved dentistry. Any one who submits to the saving of his teeth by having the nerves killed, or retains an old tooth with a dead nerve in it, runs some risk, because there is probably some pathogenic condition in the tooth. He has observed a great many cases where the tooth was extracted, and he does not see how the dentist can destroy all nerve tissue; when these cases break through into the antrum they are often relieved; they create a little antrum trouble, but not much, and continue discharging for years and years. There is a very moderate amount of periosteitis kept up by the root-end of the teeth.

Dr. Myles said that he objected to the way in which many men have their teeth saved in this way and then blame the dentist. We should take the chance when we have that condition. He has noted such teeth that were filled up to the root-end, but beyond that, where the dentist could not treat the condition, there would be trouble. The removal of such teeth is very beneficial when everything else fails. He has noticed that when there is an operation through the inferior meatus for the purpose of keeping up a permanent opening, a little muco-pus will come in, and the floor will feel rather boggy, and sometimes curettement will be necessary; but to clear it up entirely there is nothing to be done but the entire removal of the teeth.

Dr. Dunning said that what Dr. Myles had pointed out was very true, —the improved technic in filling the tooth canals has, in a way, increased the number of infections. Attempts have been made to save too many diseased teeth. It is impossible when the apex has become infected and the peridental membrane is involved, to absolutely clean around the end of the tooth. It must either be removed, or one must go above and amputate the root. If any pus is left in the alveolar process, or diseased tissue remains, the infection will light up again in nearly every instance. If more of these teeth were removed in the beginning it would be much better for the patient. There is too much conservative work done on diseased teeth.

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

Regular Meeting, January 20, 1914.

DR. E. B. GLEASON, *Chairman.*

(*Continued from page 564, May, 1914.*)

Results of Intra-nasal Operation of Fulminating Case of Sub-acute Frontal Sinusitis. DR. HERBERT M. GODDARD.

Male, age 60. In February, 1913, contracted cold, duration one month. Symptoms: Constant headache, drawing eye from side to side; marked swelling on nasal side of left eye, severe attacks of vertigo, unable to see across the ward.

August 22, again in hospital, protrusion of eye and marked swelling of upper lid. Ophthalmologist diagnosed orbital abscess. Intra-nasal examination revealed great swelling. After shrinking with 20 per cent cocain solution, middle turbinate found much enlarged. Free discharge of pus; diagnosis, frontal sinusitis. Anterior portion of middle turbinate removed and sinus probed; patient promptly relieved. December, a recurrence of symptoms. Insufficient drainage. Killian operation with Sullivan's graduated rasps, making very large opening into sinus. Patient cured.

Presentation of Two Frontal Sinus Cases. DR. FIELDING O. LEWIS.

Case 1. M. K.; white; schoolgirl; had tonsils and adenoids removed May, 1913. The following August she came to the Jefferson Hospital complaining of pain over the frontal region and nasal discharge. Nasal polypi were removed from the right side of the nostril, and a portion of the middle turbinate was removed to facilitate drainage. She was relieved for a short time; but later the symptoms became more pronounced, and a radical frontal sinus operation was performed the following September. The frontal sinus was filled with granulations and pus. A modified Killian operation was performed and the patient has made an uninterrupted recovery.

Case 2: An Italian laborer was referred to the Nose and Throat department of the Jefferson Hospital, from the Eye Department, with an external sinus leading from the upper eyelid, on the left side, into the frontal sinus, which was discharging pus.

X-ray examination and transillumination revealed a probable empyema of the left frontal sinus. A modified Killian operation was performed; the sinus was found to contain granulations and pus; septum between the two frontal sinuses was absent; was unable to determine whether it was congenital or pathological. The right sinus however was not open externally. After daily irrigation the symptoms subsided.

A few months later there was found a discharge coming from the line of incision at a point corresponding to the inner canthus of the eye and I believe it was due to an infection of the right sinus, which we shall operate on later

Demonstration of External Operations on Frontal Sinus. DR. E. B GLEASON.

The doctor by aid of specimens of his own preparation and blackboard demonstration very clearly explained the steps of the Killian operation and modification thereof.

DISCUSSION.

DR. COATES called attention to the fact that the Killian operation was not done to establish drainage, but to eradicate the diseased mucosa and to eventually obliterate the sinus. This makes a radical difference from all intra-nasal procedures where the object is to obtain drainage, and, as pointed out by Ostrom in a recent issue of the *Illinois Medical Journal*, ventilation, which may be even more important. In the true radical (Killian) operation obliteration is accomplished by removing the entire anterior and inferior walls and allowing the cavity to fill in with orbital fat, etc. Anything short of this complete removal differs from the true radical, though the ultimate results may be as good.

Dr. G. M. Coates presented a patient on whom a complete radical (Killian) frontal operation had been performed four years ago. She was a tubercular patient doing badly on account of the intense suffering she had undergone for two years before. The intra-nasal operation had not given sufficient relief in her case, and the radical operation was performed. Recovery was rapid and complete, and the relief experienced absolute. Now once in six months there is some crusting, otherwise there is no nasal discomfort. Her pulmonary condition is entirely arrested. The cosmetic result is first rate, although the entire anterior and inferior walls of the sinus were removed, and the sinus itself was a large one.

DR. CHARLES P. GRAYSON: The careful study of group cases like this teaches us much regarding treatment. We should be cautious about adopting the radical course. Dr. Goddard's case very clearly exemplifies this point. Failing in the conservative the radical can always be performed later on. Of course, in certain cases the latter procedure is unmistakably necessary, and nothing but an external operation will cure or relieve. In these border-line cases, however, give the patient the benefit of the doubt. Get his point of view as well as our own, and if he prefers the more tedious or conservative course be guided by his wishes. All have seen cases radically treated and results not perfectly satisfactory, patient's second condition not much better than the first. In these cases gradually we will become more discriminating. In private practice many would never require operation if our services were enlisted earlier. The early recognition of such cases by the general practitioner is of the highest importance, and this involves education. In the college the student must be impressed with diagnostic points.

DR. CHARLES F. ADAMS dwelt on the importance of enlargement of drainage. Formerly we were satisfied with small passage. Introduction of graduated rasps will save many from radical operation.

Regular Meeting, February 17, 1914.

Case with Adhesions Between Soft Palate and Larynx and Stenosis of Larynx. Dr. Fielding O. Lewis.

A specific case—initial lesion two years ago; later developed sore throat and reported to clinic eight months later; given mixed treatment of mercury and iodid potash for six months. At present no active lesion, all fibrous tissue.

DISCUSSION.

Dr. Thomas J. Harris recommended examination by direct method, soft catheter in esophagus and larynx to determine amount of narrowing. Referred to anti-leutic treatment and fibro-lysin, but not to nose and pharynx.

Chronic Stenosis of the Larynx. Dr. Thomas J. Harris.

Tracheotomy and intubation, the two chief immediate causes. Tracheotomy as a cause the result of an imperfectly performed operation. The importance of lower, or media tracheotomy to be recommended. Construction of the trachea canula a further cause. Intubation not an unalloyed benefit in acute stenosis. Diphtheria, the most common exciting cause, can, however, produce a narrowing without intubation tube.

Chronic hypertrophic laryngitis and cicatrical tissue the two chief pathological conditions met with. The importance of thorough examination as an aid to correct diagnosis of the condition present. The direct examination in the case of children.

Prognosis: Treatment; discussion and comparison of the non-surgical methods of Schroetter, O'Dwyer-Rogers, and Thost. Dangers of auto-extubation and the importance of permanently retained tubes. The surgical procedures, including laryngostomy. Relative merits as compared with non-surgical procedures. Thost's, Roger's and Sargon's statistics.

DISCUSSION.

Dr. George C. Stout: For treatment of chronic stenosis of luetic origin great mechanical ingenuity and very ingenious device necessary to prevent stenosis above tracheotomy tube. Dr. Stout exhibited tubes of his own invention, in sets of three or four sizes, for obtaining pressure and absorption. One case in which the opening was maintained for six years, suddenly died; center of respiration worn out, theory advanced as possible cause of death.

Dr. S. MacCuen Smith said he was surprised to hear how common these cases seem to be. We are forced into different lines of work, even in our strictest specialities. Dr. Smith referred to a case he saw at Germantown Hospital, stenosis of larynx of post-diphtheric origin. Dr. Cohen had advised deferring operation until patient was 6 years or more. Later, case fell into the hands of Dr. Skillern.

Dr. Ross Hall Skillern reported case of baby boy referred by doctor in country. Marked stenosis, no history, during direct examination patient collapsed and in extremis; quick, low tracheotomy; under anti-luetic treatment no improvement. Probability of post-diphtheritic paralysis prompted use of strychnia for prolonged period; uneventful recovery.

Dr. A. Alexander Randall asked for information regarding fibrolysin. Has never used it, but had heard of induration following and remaining for years. Dr. Randall has used serolysin by the stomach in ear cases.

Dr. Robert F. Ridpath: Last summer at the London Congress, large tubes were advocated and it was also noted at the various German clinics less edema followed the use of the larger tubes.

Dr. George W. Mackenzie has met with relatively few cases of stenosis of larynx. Case with specific history referred by Hajek. Dilated with tubes like Von Schroetter's but more elliptical treatment for three or four months; patient eventually educated in self use of tubes. Removed half of larynx in a case of carcinoma. Partial stenosis; used solid graduated bougies, four sizes, great difficulty with granulations until burned down, then little trouble.

Dr. Harris, in closing, emphasized importance of constant and complete preparation in emergency in stenosis of larynx. Manhattan Hospital now has operating set in every ward in every clinic. Dr. Harris referred to a case of compound stenosis in man, aged 40; breathing only through tracheal wound, diagnosis not established, no attempt to dilate until came under his case. Rubber canula used for a day or two, then Schroetter tubes, first for a few seconds and later for five minutes, until complete dilatation secured. Occasionally a child tracheotomized and no obstruction found has great difficulty in breathing. Edema low down, application of adrenalin well down through tracheal wound will reduce swelling.

Regular Meeting, March 17, 1914.

Presentation of a Case of Specific Perforation of the Soft Palate. Dr. George M. Coates.

This case was presented because of the early stage of the disease when first seen and from the fact that a second perforation in the hard palate is at the present time just starting. The destruction of tissue was very rapid and the Wassermann test positive. Salvarsan has not yet been administered.

The Surgery of the Tonsils as it Relates to the Functions of the Tongue and Soft Palate in the Production of Voice. Dr. G. Hudson-Makuen (by invitation).

Published in full in the May issue of The Laryngoscope, *p. 508.*

DISCUSSION.

Dr. D. Braden Kyle: There is no question that much unnecessary surgery has been done. There are some fine voices, grand opera singers, that to his personal knowledge have no tonsils. Different methods of training the voice must be based on irregularities of adhesions in the lateral walls of the pharynx. Taking out the tonsils does not affect the acoustics of the voice. Some extra effort is often required, due to a defective muscular action, in placing certain tones. As much risk of scarring and interference in tone production is experienced after tonsillotomy as after tonsillectomy.

Dr. George Fetterolf: Dr. Makuen draws a rather drastic picture of the results of tonsil enucleation. Sometimes extreme disfigurement occurs but not always. By frozen section he has found that the palatopharyngeus lies much further forward than is usually supposed, and is frequently damaged in cutting around the upper pole. In his own experience mutilation is due to this one thing and he therefore no longer makes this incision and the following cicatrices are not disfiguring. It is the taking away of the mucous membrane of extra-tonsillar areas that causes deformity. The palato-glossus muscle is often very small. Dr. Fetterolf here demonstrated a dissection of the lateral wall of the pharynx.

Dr. E. B. Gleason recalled a case where most of the lateral wall was removed for sarcoma, but where a perfect speaking-voice resulted. Removing tonsils enormously increases the size of the resonant cavity, which must have some effect on the voice. It is not the way a pharynx looks after operation but the way it behaves that is important. He remembers one tonsillectomy where it was claimed that the singing voice was ruined and another where there was impairment of the speaking voice and singing voice by the resulting cicatrix.

Dr. G. K. McKenzie: We should be charitable in regard to the work of other operators, for we all have accidents at times. I have seen the palato-glossus frequently lacerated without harm to the voice. The question arises whether we should be the sole judges as to the advisability of removing tonsils when the case is referred by an internist with a request for operation. The paper of Dr. Makuen's is a masterpiece and we should all take warning not to be too radical in removing diseased tonsils that may be cured by more conservative measures.

Dr. E. L. Vansant: Dr. Makuen drew attention to the fact that after operation the palatal arches usually do not look so well, but has overlooked the fact that pathological change has taken place there, due to enlarged tonsils. The palato-glossus and palato-pharyngeus have been stretched and hypertrophied which is the cause of trouble after operation. He believes that it is better to remove the tonsils entirely. Vocalization is not usually the reason why tonsils are taken out, but the singing voice should be kept in mind. Many amateur singers, who can only sing because of pathological conditions in the pharynx, do so because they have been trained that way. Remove the tonsils in these people and you change the whole mechanism at once and it is impossible for them to sing; the voice is lost. They must be thoroughly retrained and re-educated.

Dr. Fielding O. Lewis: It is often a question of surgical judgment whether hypertrophied tonsils do not interfere with voice production and the voice become better after their removal. All operators should understand the indications for complete tonsillectomy and also for tonsillotomy. Adhesions are often the result of lack of treatment, afterwards.

Dr. William B. Hitschler reported the case of a man who had frequent attacks of tonsillitis. For a few weeks after his operation his singing voice was damaged, but later the quality became better than ever. Cases operated upon seldom return for observation and we often do not know the amount of scar tissue that has formed. He has seen some cases where the scar tissue was so enormous that the movement of the tongue was interfered with. He is inclined not to do as much enucleation as in the past.

Dr. C. F. Adams, speaking in reference to leaving the capsule, said he was often chagrined to find that the fossa would fill with fibrous tissue and old conditions of irritation would return. He therefore now takes out the capsule entire. He has no difficulty in enucleating and has little scar and few adhesions of the muscular tissue. The pillars then look natural. He mentioned one case of falsetto voice with lack of control in which, ten days after he had removed the tonsils, a splendid basso voice developed, which the patient soon learned to place.

Dr. Ross H. Skillern confessed that he was not satisfied with his tonsil work. Immediately after operation all seems well, but when the patient returns later, bad contractions are seen. He does not know why this should happen, but knows that it does so in almost all cases and that some cases where he is sure the work has been well done, the results are disappointing. He thinks the sooner we find the remedy for the trouble, the better.

Dr. P. S. Stout operated on a singer for attacks of tonsillitis and frequent loss of voice. Four years later the voice had improved very much.

Dr. G. Hudson-Makuen, in closing, said that singing is largely psychic, which explains why bad mutilations have sometimes not affected the voice. Some people have the singing instinct and cannot be kept from singing, while in others a very slight injury will spoil the voice irretrievably. He has endeavored to show the results of these operations on the delicate vocal instrument. After an extra-capsular operation, the singing voice cannot be quite as good as before. Some impairment must take place, no matter how well the operation has been done. Sometimes abnormal tonsils do so much harm to the voice that they must be removed. This is a very delicate operation and the least satisfactory to him. He believes the capsule is the crux of the matter, but he does not want to go on record as being always opposed to the extra-capsular method. It is the only thing to be done in children and beautiful results may be obtained.

Errata: In Dr. Amberg's article, page 543, May, 1914, the legends under the cuts were transposed.

6-14

E. Gruening

IN MEMORIAM.

Dr. Emil Gruening died at his residence in New York City, May 30, 1914, in the seventy-second year of his life, of cerebral endarteritis, after a short illness.

He was born in Hohensalza, Prussia, October 2, 1842, came to the United States in 1862, and became a student in the College of Physicians and Surgeons soon after his arrival.

He enlisted in the Union army in the Seventh New Jersey Volunteer Infantry and saw service at Hatcher's Run, before Petersburg, and in the campaign which ended in the surrender of General Robert E. Lee, which he witnessed.

At the close of the war he returned to his medical studies and was graduated in 1867. In 1871 he was appointed an assistant surgeon to the New York Ophthalmic and Aural Institute, of which the late Dr. Hermann Knapp was executive surgeon.

Some few years later he was appointed to the position of Ophthalmic and Aural Surgeon to Mt. Sinai Hospital and to the German Hospital, as also Ophthalmic Surgeon to the New York Eye and Ear Infirmary.

He served these institutions faithfully for over thirty-five years, holding honorary positions in each at the time of his death.

He was president of the American Ophthalmological Association, as also of the American Otological Association and received every possible honor at the hands of his colleagues.

He devoted himself exclusively to ophthalmology and otology, and was an assiduous worker in those fields.

He was the first in this country to develop and perfect the mastoid operation and many of the best-known American otologists were his pupils, as well as his ardent admirers.

In every thing that he did, Dr. Gruening was thorough. He spoke German, English, French and Italian fluently; he was an accomplished classic scholar, and he was a connoisseur in music and fine arts. He showed his love for humanity by his constant and untiring work for the poor in the hospitals with which he was associated.

He had the courage of his convictions and he was firm in his defense of them. When once he selected a friend he was constant and loyal and one could feel honored and proud of that friendship.

In his private life he shone best. A brilliant conversationalist, with a fine sense of humor, gentle, courteous and dignified, he graced any gathering. A great scientist who would have won a title in any other country, not that he ever wished for that, for he was proud of his American citizenship; a skillful operator, kindly in his faithful care of those who sought his help; a loving husband and father, and a loyal friend. Those who knew him best bear him in fond and loving remembrance. We shall miss his wise counsel, good will and encouragement, and sadly bid him farewell now that he sleeps in eternal rest.

EMIL MAYER.

THE

LARYNGOSCOPE.

VOL. XXIV. ST. LOUIS, JULY, 1914. No. 7

ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to THE LARYNGOSCOPE.)

NEW TECHNIC FOR THE REMOVAL OF INTRINSIC GROWTHS OF THE LARYNX.*

DR. ROBERT CLYDE LYNCH, New Orleans.

Since the discovery of the laryngoscope by Garcia in 1854, it has been the keen desire of laryngologists to relieve the larynx of its vicissitudes. When Lewin, Von Brunson, or Walker removed the first tumor from the larynx by the aid of a mirror through the natural passages, what a great step forward was made from the older methods of their blind removal by forceps and finger? The discovery of general, and then of local anesthesia marked another epoch in the climb to treat the larynx in a more surgical manner with an ever increasing regard for its function after the primary relief had been obtained.

Such procedures, practiced in the manner known so well to you as the indirect method, carried with them an element of personal equation both as to patient and doctor, hours of throat education, tolerance for anesthesia—especially local—and the peculiar physical phenomena that present at the very last moment, to defeat that most trying, most exacting procedure known to surgery—the removal of a papilloma or fibroma from the vocal cord.

So unsatisfactory, and in a way unsurgical was the method, that the masters of our work sought continuously newer means to deal more accurately and scientifically with these conditions, and if possible to eliminate the multitude of difficulties that usually present during the progress of indirect operations. Many short-comings developed from the improper interpretation of the point of attachment, size, shape and extent of the new growth; and because of these inaccuracies, as well as those that developed after the grabbing type of operation, all were seeking for something more definite.

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*Read before the American Laryngological, Rhinological and Otological Society, Atlantic City, June 20, 1914.

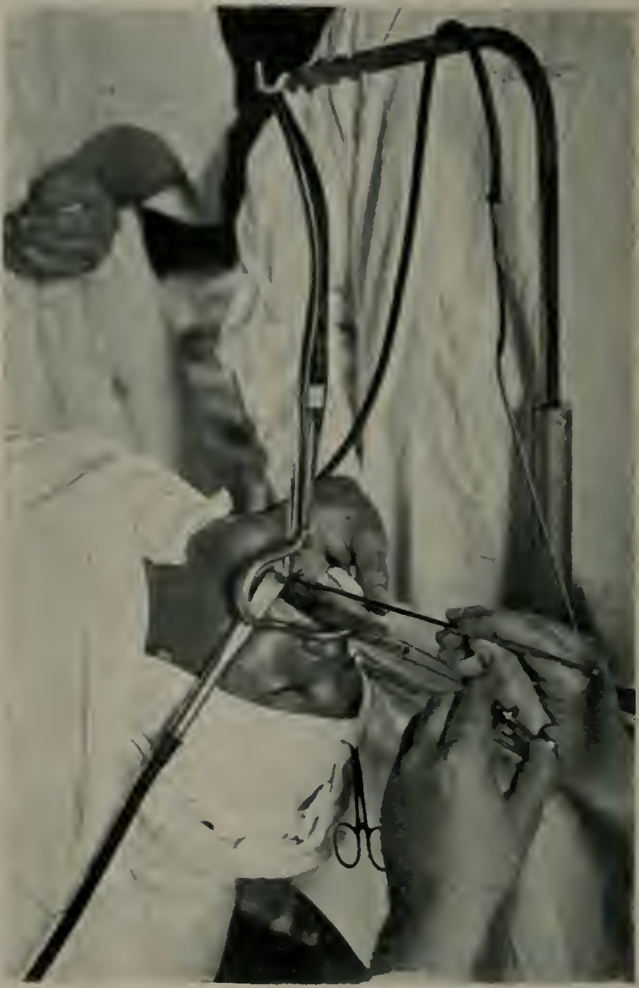

Figure 1. Arrangement of patient, operator, assistants, anesthetist, suction tube, etc., taken during dissection of papilloma.

To mention Killian, Bruenings, Jackson and Ingals is sufficient to acquaint you with the method of direct laryngoscopy, and the remarkable growth and improvement in this later step, though far more accurate and possibly less difficult is not without its own deficiencies. Lastly, by accident, Killian discovered the possibilities of suspension and with his careful study presented to the world the suspension laryngoscope. The latter apparatus removes all of the greatest obstacles to direct laryngeal inspection, and now opens up new methods of study, diagnosis and surgery, for the relief of the various conditions to which the larynx is heir.

From a surgical standpoint our efforts are directed mainly against the removal from the larynx of the various tumor-formations both benign and malignant, to which it is liable. As the indications for treatment are quite plain it remains then for us to develop such methods as appeal to us individually or collectively as ideal, or nearly so, as is within our imaginations to conceive and execute.

The type of instrument that has served us up to this time is some one of the hundred varieties of forceps, be they pinching, biting, punching, or the double curette—dull or sharp, etc. Briefly, the technic is to grab more or less accurately, and pull, or twist, or both, let come what will—and therein lies the most unsurgical part of this type of surgery. We should criticise our colleague, the laparotomist, or gynecologist, for such a method in dealing with similar lesions in his domain. I hope to convince you that the way is now clear to deal with the larynx in exactly the same manner as our brothers do in other parts of the body; and with the instruments I will show you I can dissect accurately, ligate bleeding points, cover raw surfaces by sutures, and do plastic work with almost as much ease and quite as much accuracy, as my brother surgeon who works in the vagina, rectum, or abdominal cavity. The suspension laryngoscope is necessary to all this work and I use it in its simplest form, with an improvement that to me is essential.

The primary requisite is perfect quiet of the part, so that the selection of an anesthetic and above all its administration is most important. For all procedures that are to be somewhat prolonged and in all children, I much prefer a general anesthetic, though I have kept one patient on the suspension apparatus for one hour and ten minutes under local anesthesia, perfect comfort during the whole time.

In local anesthesia with the patient in the sitting posture, administer a morphin scopalomin tablet of appropriate dose one hour before the operation. Then apply to the uvula and post-pharyngeal wall a 10 per cent cocain solution with such care as to avoid gagging or coughing; to avoid these reflexes at the start is to have comfort and quiet throughout the performance. Follow this with three drops of the same solution from a laryngeal syringe upon the epiglottis, and wait three minutes requesting the patient to avoid swallowing and to spit out the excess. Next application, five drops into the larynx over the cords and down the trachea, requesting the patient to cough out the excess. From the sitting posture, the patient is then put upon the table, the speculum introduced carefully and quietly, adjusted perfectly and slowly, and the larynx tested with a cotton mop. If not perfectly quiet, more cocain of the same strength is applied until anesthesia is perfect and we can then proceed to work.

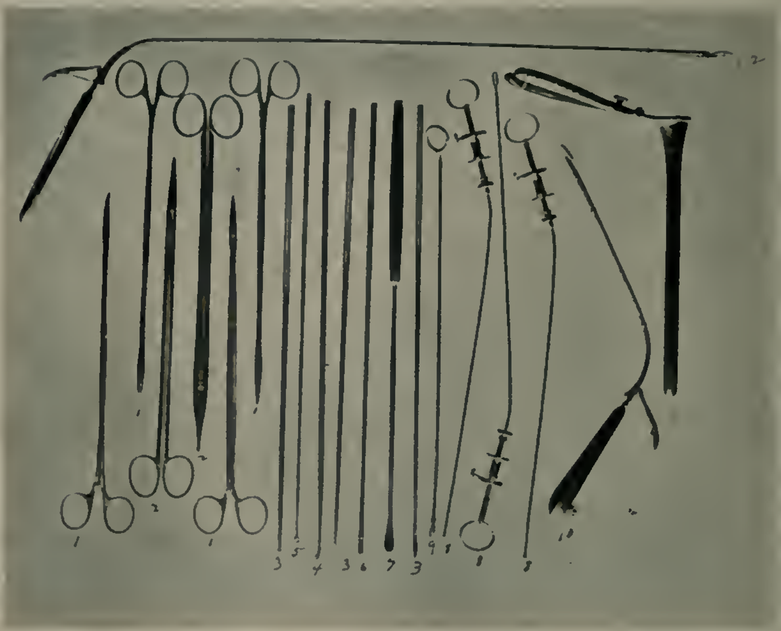

Figure 2. (1) Artery forceps, curved and straight. (2) Scissors. (3) Knives, right angle, obtuse angle and straight. (4) Curette. (5) Knot-tyer. (6) Needle holder. (7) Periosteotome-blunt dissector. (8) Killian baby forceps. (9) Sponge holder. (10-12) Tilting mirrors. (11) Lynch larynx speculum.

I have removed a single, pedunculated fibroma, multiple papilloma, vocal nodules, and specimens for microscope in adults, with complete satisfaction to myself and comfort to my patients with this method of anesthesia.

General anesthesia is more satisfactory for malignant tumors, papilloma in children, for plastic work, and is essential in all cases where perfect relaxation of the parts concerned cannot be secured by local means. I select ether in every instance, administered with the Cain-McDermott warm ether-vapor apparatus, under the supervision of a trained anesthetist.

As perfect quiet is of greatest necessity, I insist on my patient being kept continuously in the surgical stage of anesthesia, securing perfect relaxation of the parts, conducing to the most accurate work, and surrounding the patient with that type of anesthesia which we recognize as the safest.

Crowding the patient under to the limit and working during the period of recovery—and if that period is too short crowd under again—is to my mind neither wise nor safe. This type of anesthesia will develop for the operator many disturbances just at the wrong time, and is surely most dangerous for the welfare of the case. I caution you against it.

As our experience increases with the use of the warm ether vapor, we are realizing that the tracheo-bronchial irritation following the use of this drug is decidedly overrated—none having occurred in nearly sixty anesthesias of this type. In order to eliminate the reflex element in the larynx even under general anesthesia, I paint the parts carefully with a 10 per cent solution of cocain, using only one application, taking particular care that none reaches the trachea, heeding Jackson's advice regarding the cough-reflex in larynx operations. I then prepare the field by painting these surfaces again with 20 per cent solution of argyrol freshly prepared. Whether this limits or prevents infection I cannot say, so far I have had none and I am inclined to think I get less inflammatory reaction.

I find some form of suction-apparatus necessary to take away the secretions that come from the salivary glands and esophageal mucosa, also to care for what bleeding occurs, and one can, with ease, pick up small fragments of tissue that may drop and remove those blood-clots that form and lie on the posterior wall of the trachea. The careful use of the suction tube for cleansing purposes as against sponges, eliminates one of the factors of traumatism, to which so little attention has been paid in laryngeal work, besides giving the operator the cleanest field possible for his manipulations.

To secure a perfect view of the entire interior of the larynx including the anterior commissure, I have found it necessary to modify the original apparatus of Killian and Albrecht in only two ways: 1. The limit of motion in the horizontal of the traveling crane or gallows is entirely too short and to obviate this, a table top is so constructed as to have a projecting platform twelve inches long and four inches wide; the remaining width of the top being hinged to drop at right angles. This removes the necessity of dragging the patient on the table and disarranging the sterile coverings, and allows the proper placing of the crane to give twelve inches more of motion for adjustment to proper view. 2. The mechanism of the tooth plate of the mouth-gag is bad, it sticks and jams and the range of motion, ¼ inch, is entirely too small to suit all cases. My modification now allows one inch more room in the vertical, and one in movement in the horizontal—the latter being controlled by a screw which will not stick and can be adjusted properly and quickly. This allows me to use shorter tongue plates and does away with the epiglottis holders of Albrecht and Freudenthal.

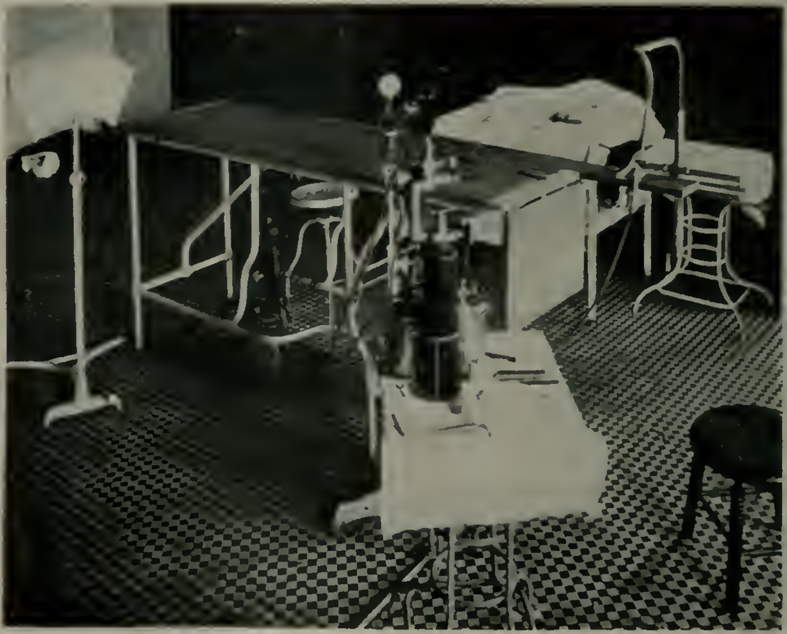

Figure 3. Table top, ether apparatus and suction apparatus under table.

Having obtained a perfect view of the larynx with that organ and its owner quiet I proceed as follows: In vocal nodules I pick up the affected cord gently, turn it nearly to an angle of 45 degrees that I may see its under-surface, using for this purpose the baby forceps of Killian. If the nodule is of the pin-head type, I pick it off with the Killian baby double cup-forceps. These are so small that they can be applied as accurately as one would pull a single hair from a follicule.

If the growth occupies the superior surface and is seen to involve mainly the sub-epithelial structures, I split the surface layer with the knife and pick out the small tumor with appropriate forceps, reapplying the surface membrane and dressing the wound with the tincture of benzoin compound which will cover the area as collodion would on the skin surface. Absolute rest to the voice for 48 hours will show the wound healed and practically free from inflammatory reaction. Two cases operated on in this way have had clear tones restored and no recurrence thus far—five months.

In single pedunculated tumors, I proceed by picking up the tumor with the forceps, encircling its base with a wedge-shaped incision and remove it by clear dissection with a knife. In one case operated on in this way, quite a raw surface was left, which I closed by stitching—using the finest plain catgut. I believe this to be the first instance on record of stitching in the larynx through the mouth, and the results were a perfect healing, with as little reaction as one sees in a skin wound healing by primary union.

This to me is far more surgical than the older method of removing by tearing, pulling or twisting forces which must obviously carry with it adjacent normal mucous membrane, leaving a surface to heal by granulation and producing a scar of more or less size, the contraction, perhaps, interfering with the normal function of the part.

Single papilloma are grasped with the forceps and shaved off below the level from which they spring. One case of this type left but little raw surface, healed kindly, and has not recurred. I have often wondered why multiple papilloma recur with such tenacity. The same tumors appearing on the skin and having the same histological characteristics are removed by the dermatologist without recurrence unless the procedure is not complete, when they will recur with the same frequency as occurs in the larynx.

Upon reflection, do you think it at all possible to remove multiple papilloma from the larynx with any one or all of the forceps in the shop? The very nature of the instrument prohibits this Guarded punch forceps or double curettes cannot remove every vestige of a papilloma, any more than they will peel a tonsil entirely from its capsule. Selecting this latter site where the mass is large and easy to reach, you know that the complete morcellement of the tonsil was impossible, and you have seen tonsillitis after such procedures. Accepting this, is it not more than likely that papillomata show this very marked tendency to recur, because they have been incompletely removed? To illustrate:

Case 1: Mrs. Z., Italian, a patient of one of our Fellows, suffered from multiple papilloma involving false and true cords on both sides. Sub-glottic area left side She was under numerous sittings for removal by direct methods with alcohol applications in between. For two years this continued. On account of change of residence she was referred to me. At first visit she was five months pregnant, larynx still involved to extent stated above. Two attempts at removal by direct method using Jackson speculum and plain forceps resulted in nothing but postponement until after delivery.

She returned in one year, instead of after delivery, again four and one-half months pregnant. Larynx about as I saw it on first examination. Under ether and suspension, I grasped the mass with Killian baby forceps and proceeded to dissect cleanly the entire area involved. It was found after finishing above the cords that the sub-glottic space on the left side was involved. This mass was peeled off below its level of growth the same way. Fearing lest I should leave some small portion behind, I curetted gently the whole surface including the sub-glottic area. This was then swabbed freely with grain alcohol. To my amazement there was practically no shock, but slight inflammatory reaction, and on trial the second day, a very fair voice for the first time in five years. Recovery was complete with voice of full, clear tone. Delivery occurred in time. This

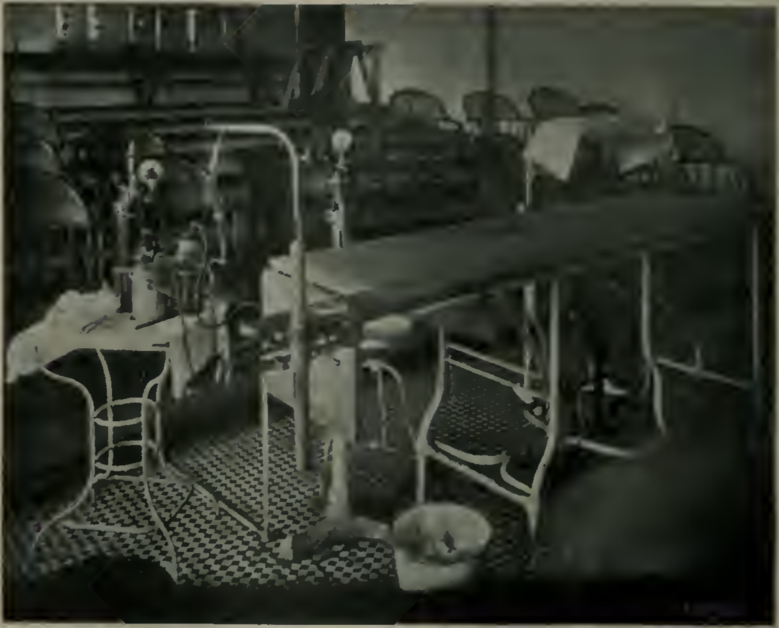

Figure 4. View showing increased movement laterally of traveling crane.

patient presented one month ago for examination, again two months pregnant, with absolutely no evidence of recurrence. She has had no treatment, either local or constitutional, and is now pregnant with no papilloma.

Case 2: D. B., Colored; a shouting church member: multiple papilloma of larynx: hoarse for two years. First attempt over a year ago with direct method and forceps, voice hoarse after operation, return to aphonia after two months. Second operation seven months ago; cocain anesthesia, suspension, complete removal by dissection and curettage of base. Application of grain alcohol; patient reported early in May, 1914. Voice clear; cords white, no recurrence. Still shouting.

Case 3: "Buster," 8 years old, brought to clinic with marked laryngeal obstruction and cyanosis. Immediate tracheotomy. Diagnosis multiple papilloma practically filling larynx. I could not see by direct inspection the opening into the trachea. Six months of laryngeal rest with the hope of spontaneous disappearance; no change in growth whatever. Five trials at removal under ether by direct speculum and forceps—very rapid recurrence. Thyrotomy with removal of mass—this in a child of 8, with a very short, fat neck and a tracheal cannula in place as the only breath way—was undoubtedly the hardest task I have ever had and I am sure, because of the difficulties, the procedure was incomplete—the result was a complete failure. Two trials with fulguration, masses seemed less for period of three weeks then resumed their usual appearance. Second period of rest for three months. Under ether and suspension, the masses were removed by dissection, curettage of base and application of alcohol. Respiration re-established through larynx. Cannula removed in twenty-four hours, voice in thirty-six hours, and so far no recurrence. Here again the reaction of inflammation was surprisingly slight, even though with my larynx speculum, I removed and curetted papilloma from the trachea and removed granulating masses from the point of entrance of the tracheotomy tube. It has been nine weeks since this last procedure. The tracheal wound is firmly closed and the little fellow is happy, with a very good voice in spite of his "surgical career." He is being kept in the institution merely for observation.

Albrecht writes of curetting papilloma, (*Journal of Laryngology*, February, 1911). This is the only reference I can find. He uses the forceps for removal and curettes the base. He has had some recurrences, and therein illustrates the difference between forceps removal and my removal by dissection. You will be surprised to find how easy it is to do this. The technic is in no way difficult or complicated.

I believe I am the first to remove completely by dissection through the mouth an intrinsic epithelioma of the larynx, without external incision, delivering the tumor in one mass upon a cartilaginous plate. The microscope verified the diagnosis and also the fact of its total removal.

Case 4: Mr. B. applied at the Eye, Ear, Nose and Throat Hospital at New Orleans, because of a hoarse voice which had existed for five and a half months. He is 54 years old and rather thin, though active and in good health. He complained of gradually increasing hoarseness, slight shooting pains in the left ear. and the desire to cough occasionally, having at times upon extra exertion. some noticeable dyspnea. Examination: Ears, nose, epi, -meso- and hypo-pharynx normal, two carious teeth, some pyorrhea. tongue normal, right half of larynx normal, left vocal cord replaced by grayish-white new formation disposed to extend towards venticle, occupying the whole cord from the vocal process to the anterior commissure. No glandular enlargement. Slight lagging of left arytenoid, though no change could be noticed in membrance covering this

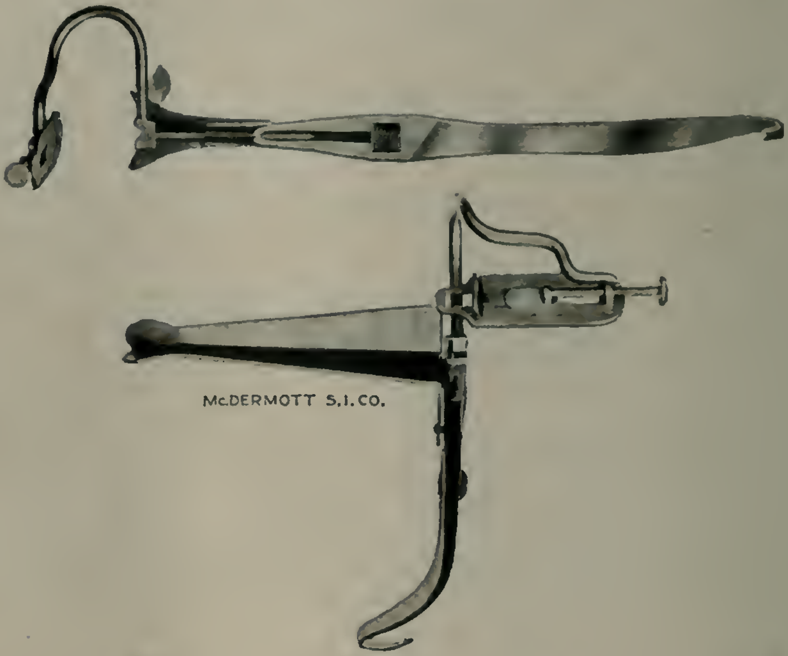

Figure 5. Modification of tooth-plate of mouth-gag to allow one inch more motion in horizontal. This allows use of shorter tongue plates.

cartilage. He swallows with comfort though at times there is an apparent catch. Wassermann negative, no T. B. in sputum. Von Pirquet negative. K. I. gtts XXX tid for three weeks, which time was utilized in tri-weekly examinations. No change after K. I. Operation was discussed with patient and free consent gained to do as I thought best. I proposed to remove the mass through the mouth under suspension and had the following instruments constructed: Three knives, right angle, obtuse and straight, all double-cutting except last; periosteotome; needle-holder; knot-tyer; scissors; artery-forceps; mirror for examination of subglottic region and walls of trachea; curette.

Under ether administered by my special anesthetist I proceeded to examine carefully with the mirror from every angle, the size and extent of the growth. It was seen not to enter the ventricle but to extend for a distance of ¼ inch below the cord over the cricoid cartilage. The right side was entirely free from any involvement. You cannot imagine the source of satisfaction gained from this preliminary inspection, and I recommend it to you in all cases, whether you operate this way or not. At the same time the upper end of the esophagus was looked into so as to be sure that there was no extension in that direction. Our pathologist, Dr. W. Seeman, was at hand, ready to make rush section for diagnosis, and to assure me. if possible, of a complete removal. I made a vertical incision beginning about one-eighth of an inch to the right of the commissure cutting through the right cord to the cartilage and extending the incision one-half inch toward the epiglottis. With the angular knife the incision followed the apex of the false cord curving posteriorly to the middle line. The periosteotome was inserted and with care I lifted the perichondrium from the left half of the thyroid cartilage, clipped off the vocal process of the arytenoid cartilage and continued the subperichondrial dissection on the cricoid until I could see that I was well below the tumor mass. The posterior vertical incision was then carried down with the scissors, the anterior with knife, and the lower transverse one was made with the straight knife and the tumor, surrounded by apparently healthy tissue, was removed in one mass on its perichondrial plate. Dr. Seeman reported in seven minutes the mass to be epithelioma and to be surrounded by normal tissue.

The raw surface was large, there was only little bleeding, the suction apparatus caring for it nicely. The wound surface was dried, inspected scrupulously for any suspicious point and the whole area painted with tincture of benzoin compound. Patient was put to bed, flat, and watched carefully. Morphin grs. ¼ administered as soon as he began to be conscious from the anesthetic. You will find this to work well in preventing the period of excitement after anesthesia and in many instances to relieve vomiting. Perfect quiet was maintained, and upon awakening from the morphin he was cautioned continuously about coughing hard or straining. Ice bags were applied to either side of the larynx and in four hours, sterile water was taken with ease. In two days patient was up in bed, out on the third, and home on the fifth. Slight emphysema existed for twelve hours, but did not extend, and was only indistinctly felt. Wound was seen to granulate nicely, argyrol being instilled over the larynx and into the trachea every second day. In five weeks I could no longer recognize the slightest evidence of operation except the loss of the left half of "viscera of the larynx." It is now ten months since this procedure, and I cannot see the slightest trace of any recurrence. My patient is fifty-six pounds heavier, and though having a squeaking voice is, I hope, well.

Several points are offered you for consideration: The tumor is removed in one mass without being disturbed in any way by any instrument or manipulation. This is the accepted surgery of malignant tumors. This being accomplished without disturbing the integrity of the cartilaginous box, must diminish in a great measure the possibilities of a recurrence. If tumors of this class spread rather by contiguity of tissue than through the lymphatics in this locality and if we accept the fact that the invasion of this spread is resisted most strongly by cartilaginous tissue, we then have two very excellent reasons for expecting far better results than can be obtained by any procedure that begins by splitting the cartilage and thereby furnishing a gateway for invasion into the skin and sub-cutaneous tissues. Though brilliant cases of removal and cure of malignant growths of the larynx by punch forceps working through the mouth have been reported by Killian and Chappell, the method cannot appeal to your surgical sense in any way, and is directly against modern advice relative to the surgery of malignancy.

My experience with thyrotomy for cancer covers five cases one of which recurred, and this recurrence took place in the line of incision rather than through the lymphatics or by extension from either end of the cartilaginous box. I am certain that my experience here is not unique and I believe that this is the road of selection for the secondary invasion. Secondly: since the contour of the thyroid and cricoid cartilages are preserved in their normal state, the possibilities of secondary stenosis are most remote. One is convinced of the impossibility of obtaining cartilaginous or bony union after thyrotomy, and Jackson advises against any stitching of these parts at all. Surely then, the dysphagia, the greatly increased dangers of infection, the long slow process of granulation, and most of all the incomplete and faulty approximations of these parts, speak either for recurrence or for stenosis. On the contrary all this is avoided by my technic and my patient has never had the least sign of obstruction, has a passageway that is beautifully wide, and that cannot now possibly contract to a degree anywhere near stenosis. On the other hand two of my remaining thyrotomies now suffer from a stenosis which demands the continuance of a tracheal cannula. One of these has recently submitted to a new plastic operation, and I now have great hopes of ridding him of his cannula and restoring normal breathing.

This operation and the subject generally is too recent for me to discuss at this time.

The time is quite near at hand, or to me has arrived, where we must discard our ancient methods of laryngeal work and formulate methods that are abreast of the trend of present-day surgeons. We are quite up to if not ahead of him in much of our nose, ear and pharynx work, but up to this time we have not, in a general way, changed the methods prevailing since 1861, when we believed a benign tumor of the larynx should be removed through the mouth with a mirror and forceps. I submit this to you for serious consideration.

624 Gravier Street.

Pathological Tonsil. H. Miller *Jour. Ophth and Oto-Laryngol.*, March, 1914, p. 79.

Miller states that since the tonsils are situated above the horizontal portion of the palato-glossus and palato-pharyngeus, these muscles force them upward and outward toward the pharyngeal opening of the Eustachian tube, partially or completely occluding it. Secretions accumulate and produce complications within the ear. When the tonsils are low down in the fossa they may rest upon the dorsum of the tongue or exert pressure upon epiglottis and upper larynx, producing a reflex cough. Ed.

LARYNGITIS SUBMUCOSA SUBGLOTTICA ACUTA.*

Dr. Charles W. Richardson, Washington, D. C.

Under the above name we recognize an acute catarrhal inflammation of the larynx affecting, to a great extent, the submucous layer of the subchordal portion of the laryngeal mucosa. This type of laryngeal affection has been recognized for many years, first having been described by Bayles in 1808, although through his description there was no clear differentiation between this purely catarrhal affection and the serious infiltration. As men began to differentiate this condition from edema and other allied affections, the inflammatory changes in the larynx of the more severe type, especially those affecting the submucosa, were given various designations. Thus Burow describes the condition as chorditis vocalis inferior; Von Ziemssen as laryngitis hypoglottica acuta gravis; Rauchfuss as laryngitis subchordalis acuta; Curveilheir as laryngitis submucosa subglottica; and Gottstein as laryngitis submucosa acuta. It has always seemed to me that the name applied by Curveilheir describes most accurately the affection, and for that reason I have employed it. Many authors still describe this affection under acute laryngitis and recognizing it as a more severe type of that affection. Early in my professional career, when I was doing a great number of intubations, I was brought in contact with cases which, while suffering from marked stenosis of the larynx with stridulous breathing, possessed, nevertheless, very few of the characteristic symptoms of true laryngeal diphtheria. Culture investigation gave a negative result in these cases. The use of the laryngeal mirror, to which I resorted early in the investigation of these cases and which can be employed at almost any age, enabled me to recognize the nature of the invasion in all subsequent cases which came under my observation.

These cases had been described as cases of false croup; as due to incurvation of the epiglottis—whatever that might be; as true cases of laryngeal diphtheria, in which the bacteriologists were in fault in not finding the Klebs-Loeffler bacillus; as strumous laryngitis and laryngitis stridulus.

Etiology: The most frequent cause of this type of laryngeal inflammation is the same as those that bring about the acute laryngeal catarrh. In most cases we have only the evidences of a severe, acute laryngeal catarrh which has extended into the submucosa, localizing itself more intensely in the subchordal region of the larynx. Over-exertion of the voice during the existence of a simple laryngeal catarrh or re-infection from fresh exposure, is very apt to cause the extension of the simple into the more severe type of submucous catarrh. The exanthematous diseases,—scarlet fever, whooping cough and especially measles—may have this affection as a sequela. Foreign bodies, inhalation of various chemicals, irritating gases, acids, hot water, smoke, and steam may be the active mechanical cause of such a disturbance.

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*Presented at the thirty-sixth annual meeting of the American Laryngological Association, Atlantic City, May 26th, 1914.

The whole interior of the larynx presents the characteristic evidences of an acute laryngeal catarrh, but it is in the subchordal portion that the characteristic lesion is seen. In a fair proportion of the cases that have come under my observation the hypoglottic portion of the larynx presented only a moderate degree of inflammation, the cords themselves only showing slight change in color. Below the vocal cords can be seen two symmetrical bright red masses, which approach towards each other so as to almost meet throughout in the middle line. Upon the degree of the subchordal swelling and the narrowing of the lumen of this portion of the larynx is dependent the intensity of the symptoms.

The affection manifested most frequently in children is usually ushered in with the symptoms of an acute laryngeal catarrh, hoarseness of the voice, soreness or tightness in the larynx, croupy cough, and stridulous respiration. These symptoms endure for from twenty-four to forty-eight hours, when they begin to partake of a more severe character in that the respiration becomes more stridulous and the breathing more embarrassed. The embarrassed respiration is more marked at night or when the patient is in a prone position. In the more severe cases the breathing becomes markedly embarrassed and attacks of suffocation ensue, the face becoming cyanosed with delirium and loss of consciousness, which finally deepens into coma and death, unless relief is afforded through intubation or tracheotomy.

One feature has always impressed me in this affection and that is that the voice is never markedly affected. It may be more or less hoarse but is never aphonic. The general symptoms are not very marked. There is usually some temperature between 100° or 102° F. The pulse is quick-bounding and full-volumed. The appetite is not much impaired, and most children—with only moderate interference with respiration—do not seem very ill and will persist in playing, although their breathing is quite stridulous. The general facial appearance is fair, and, while the character of the breathing sound would lend the belief that there is considerable interference with the exchange of air, it is not manifested from the appearance of the color of the face. The diagnosis is made through the examination of the larynx with the laryngeal mirror. The differentiation of this condition from diphtheria is readily made The laryngeal diphtheritic is usually very ill, has only a very moderate temperature, a slow, soft pulse, is usually pale and quite anxious, and manifests no desire for food. The stridulous breathing is not uniform, being attended with occasional paroxysms of extremely difficult respiration.

In subchordal inflammation the child has not the appearance of being seriously ill, usually has fever, a full, firm-bounding pulse, the facial expression is good and the color not altered, the stridulous breathing is quite uniform, if anything gradually and progressively growing worse, with only occasional paroxysms of difficult breathing.

In laryngeal diphtheria the inspection reveals the presence of false membrane, and the result of culture examination shows the presence of the Klebs-Loeffler bacillus.

In subchordal inflammation the inspection demonstrates the presence of the bright red bands immediately below the vocal bands, more or less approaching the middle line. The culture examination is negative.

In most cases the progress of the disease is marked, first, by an apparently severe attack of acute laryngitis, which lasts for about twenty-four hours, when the stage of strident breathing becomes manifest. With the stridulous breathing we also have the cough becoming more bellowing in character. This stage usually reaches its maximum of intensity within thirty-six hours. The retrocession of the process varies from twenty-four to forty-eight hours. Many of the mild cases, except for the alarming cough and strident breathing, would give no anxiety. The children are not very sick and are anxious to be about their usual habits of life. Several children in such condition have been brought to my office for consultation. In these mild cases, although the breathing may seem to be markedly impaired from the character of the stridor and the pictures of the subchordal swelling, the countenance is quite ruddy and the lips of the normal red tinge. In the more severe types, when the breathing begins to tighten up, the progress of the case from bad to worse is very rapid and we then have the usual picture which is manifested in laryngeal stenosis, however produced.

The prognosis is very favorable for complete recovery. The mild case, if seen early enough and recognized, should, under appropriate treatment, respond rapidly. Unrecognized, neglected, or cases seen at first in the severe form, should, under appropriate surgical and general care, make complete recoveries. A fatal termination is rather unusual.

Treatment: The child should be kept abed in a warm room in which steam is generated. Where steam heat is employed, this can readily be accomplished by allowing the valve on the radiator to be slightly opened. The diet should be restricted to liquids and the bowels kept well opened by calomel and salines. Locally the larynx should be touched with a 1 per cent solution of silver nitrate once a day, if the child be old enough to permit the application being made. An ice bag should be worn over the larynx continuously. I always give ammon. bromide and carbonate with tincture of aconitis internally. If the breathing become very stenotic, intubation becomes necessary. If it become labored over many hours, I believe intubation should be done to relieve the little sufferer. In one case I fear I delayed this relief quite to the danger point.

I will close the consideration of this subject with the history of four cases, so severe in their character that they necessitated surgical intervention.

On December 5, 1890, I was requested by Dr. Price to see his two children who were suffering from laryngeal diphtheria, with marked obstruction to their breathing. The children were 5 and 7 years of age, respectively. They presented all the evidences I had learned to connect with the existence of laryngitis submucosa sub-chordalis. Examination of the larynx proved my conclusion to be correct, but, in order to prevent a possible error in diagnosis, a culture was made in both cases. The children were put to bed in a warm room, with moist air, a saline purgative given, an ice bag applied over the larynx, and the following administered internally:

Ammonii bromidi	1.00
Ammon carbonates	1.00
Tincture aconitis	.50
Glycerinae	8.00
Aqua	62.00

Sig: Teaspoonful every twenty minutes until six doses are taken, then every two hours.

The morning of December 6, I received notice that the cultures were negative. About noon of this day I saw the children. The older had improved greatly but the younger was not so well. The breathing in the younger child was more stridulous, the "riding" of the larynx was more marked and the sinking of the supra-clavicular spaces and supra-sternal notch more marked. It had grown very restless. Although its color was good and I thought it still had a good chance for avoiding intubation, I introduced a tube at the urgent request of the father. The child was *ex tube* in five days. Both children recovered.

In April, 1894, I was requested by the late Dr. W. W. Johnston to see a case of laryngeal diphtheria, in which he had received a negative culture. The laryngeal examination on this two-year-old child was negative as to diphtheria, so far as the inspection could be made. The hypo-larynx and the cords could be fairly well seen but it was impossible to view the subchordal portion of the larynx. Although the breathing was quite distressful and the child very excitable it was thought desirable to delay intubation. As Dr. Johnston was firm in his views as to the diphtheritic nature of the invasion, three thousand units of antitoxin were given and the usual treatment instituted. I spent the night with the child. We decided at 10 a. m. the following morning, on account of the increased difficulty of breathing, to intubate the child. The tube was removed on the fifth day. Several subsequent cultures were made with negative results.

March 22, 1898, I was called to see a case of difficult laryngeal breathing, the patient being under the care of Dr. R. T. Holden. Dr. Holden stated that the child, 7 years old, had passed through a moderate case of measles. When convalescence was nearly assured, it contracted an acute laryngitis, which, for several days, had grown gradually worse. For two days the breathing had been very bad. Cultures negative. At 10 o'clock he asked me to come and intubate, as the child was growing weary from the continued effort at breathing. At 1 p. m. I reached the patient's home. Breathing was very labored and the countenance was slightly cyanosed. I made a laryngeal inspection and found the characteristic picture. The effort of examination was followed by an intense paroxysm of difficult breathing which made it necessary to resort to immediate intubation. The child was extubated in six days. This case was most interesting from the almost normal character of the voice.

In November, 1912, I was summoned by Dr. S. S. Adams to the telephone at 11:45 p. m. From the character of his voice and his spoken words I knew delay meant death. I responded to his summons with great rapidity, and, had I been a few moments later, I would not have been needed. This case is most interesting, from several points of view. When this child was 4 years of age, I saw him in a similar attack, from which he recovered through the treatment then instituted. In the latter illness, which occurred when he was 9 years of age, the symptoms were identical with his former attack, and Dr. Adams treated him for several days. This second invasion occurred as a sequela to measles. On Sunday, as his breathing had become very labored, and as the boy complained greatly of his want of air, Dr. Adams requested me to see the patient with him at noon. His breathing at this time was quite strident, his cough extremely bellowing and constant, but his countenance was of good color, although beaded with drops of perspiration.

Another interesting feature in this case was his almost normal voice. The picture of the larynx was a perfect one of laryngitis subchordalis. His eye and general condition, as well as his recovery from his previous attack, caused us to hope that he would tide over this attack without resorting to extreme measures. He gradually grew worse, as the parents informed us, until about 11 o'clock when he became delirious, and this excited their gravest apprehension. When I reached the patient, I was truly astounded at his perilous condition. He was profoundly unconscious, intensely cyanosed, and simply gasping an occasional breath. I only took time to introduce the gag and quickly drove home the intubation tube as he lay prone in the bed. A few efforts at artificial respiration started up the rhythm of breathing again. He was extubated in five days. Uneventful convalescence.

These four cases will be sufficient to indicate the gravity which this condition sometimes assumes. I have, in all, intubated eight times for subchordal laryngitis. Most of the cases which I have seen in consultation have, under the appropriate local and constitutional treatment, subsided without resorting to surgical intervention.

1317 Connecticut Avenue.

PRIMARY SARCOMA OF THE TRACHEA.*

Dr. J. M. Ingersoll, Cleveland, Ohio.

In 1906, Dr. C. F. Theisen presented a paper on "Tumors of the trachea" to this association. This paper is so complete and comprehensive that, with his permission, I shall quote some parts of it:

Dr. Teisen says, "Tracheal cancer appears to favor the male sex; out of the cases collected by the writer, men were afflicted about twice as frequently as women. The youngest patient was 28 years old, the average, however, being from the fiftieth to the sixtieth year. Many more cases occur between these years than between the thirtieth and fiftieth.

"The favorite seats for primary tracheal cancer are the upper parts of the trachea and the lower parts, close to the bifurcation. The middle third is rarely involved.

"Although primary tracheal sarcoma is rarer than carcinoma, we have been able to collect eighteen cases from the literature. Gleitsmann has reported one of the few cases of tracheal sarcoma operated upon endotracheally. The tumor in his case, that of a man aged 52 years, was situated in the upper part of the trachea and nearly filled its lumen. It was as large as a small walnut.

"Both sexes seem to be equally afflicted with tracheal sarcoma and young people rather more frequently than persons more advanced in years. Occasionally the tumors are pedunculated. They often reach a considerable size and almost completely fill the tracheal lumen.

"A study of the cases also shows that the tracheal tumors are situated in the majority of the cases in the upper part of the trachea and less frequently in the lower part. They most rarely occur in the middle of the trachea. They are attached most frequently to the posterior wall, which is rich in mucous glands. This is particularly true of the carcinomata, which appear to take their origin from these mucous glands.

"The rarity of tracheal tumors becomes much more striking when the eighty-nine benign and forty-six malignant tracheal tumors are compared to the 10,747 benign and 1,110 malignant laryngeal tumors which Semon collected between 1862 and 1888.

"The malignant tumors of the larynx represent only about 11 per cent of the total number, while in the trachea, according to the cases collected by the writer, they represent about 50 per cent of the total number. These figures are significant because they show that a strong suspicion of malignancy must always attach to a tracheal tumor.

"The fibroma or fibrous polyp is usually pedunculated, and Schroetter has reported a case of a distinctly pedunculated sarcoma which was freely movable. In Proebsting's case an apparent polyp with a long pedicle, which had been coughed out, was found to be carcinomatous.

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*Read at the thirty-sixth annual meeting of the American Laryngological Association, Atlantic City, May 25, 1914.

"Sarcoma usually occurs as a growth with a broad base and smooth surface. It grows slowly, sometimes becoming very extensive, however, and shows little tendency to ulceration.

"As statistics show that over one-half of all cases of tracheal neoplasms are situated in the upper third of the trachea, a low tracheotomy would relieve the patient's breathing in a majority of the cases."

Since Dr. Theisen's paper was written five cases of malignant tumors of the trachea, all of them carcinoma, have been reported. Dr. T. Passmore Berens reported one case to this Association in 1909. The other cases were reported by Kaunitz, Simmell, Eidesheim and Nager.

My own case was one of sarcoma of the trachea, in a man, 32 years old. When he consulted me he said that he had had a persistent, troublesome cough for several months and during this time he had had three very severe prolonged attacks of paroxysmal coughing. In each of these attacks he had finally coughed up and expectorated what he called a "polyp." He corroborated this statement by showing me the polypi which he had expectorated. They were irregular, slightly nodular masses. The smallest one was about 1.5 centimeters in diameter, the largest one was 3 centimeters long and 1 centimeter thick, tapering down to a small pedicle at one end.

His larynx was inflamed and on the left side of the trachea, just below the first ring, there was a pedunculated tumor, quite similar in appearance to the largest one which the patient had expectorated. At this time there were no indications of any involvement of the tissue around the larynx and trachea. Microscopical examination of the tumors, which the patient brought with him, showed them to be spindle-celled sarcoma and an external operation was advised. The patient, however, refused all operative interference.

His physical condition at this time was good but he soon began to have increased difficulty in breathing and rapidly lost weight. One month later he consented to go to the hospital on account of very marked difficulty in breathing and it was necessary to do a low tracheotomy on him the day after he entered the hospital.

Two weeks later he consented to an operation. Dr. G. W. Crile exposed the larynx and upper part of the trachea and found a broken-down mass of neoplasm extending so widely around the left side of the neck that he decided it was inoperable and the incision was closed.

For a short time after the operation the patient's condition improved somewhat. A little later he began to have difficulty in swallowing, probably due to involvement of the esophagus, became very much emaciated and died about seven weeks after the operation. No autopsy was permitted. It seems very probable that if the patient had consented to an operation when the diagnosis of sarcoma was first made, that a resection of the trachea could have been done and the whole tumor removed before it had extended beyond the walls of the trachea.

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1021 Prospect Avenue.

SPECIFIC NERVE DEAFNESS.

At the Massachusetts Charitable Eye and Ear Infirmary during Dr. Crockett's last service, I observed eight cases in which the hearing for the whispered voice had fallen to approximately 1/25 in both ears, while still showing a positive Renné. These cases all gave a double or triple Wassermann reaction. While some of them improved under intra-venous injections of salvarsan, there promises to be better results from a salvarsanized serum given intra-durally as suggested by Swift. These cases will serve as the basis for a more complete study later showing the end-results, while other material will be added to confirm or disprove the value of the hearing test as a diagnostic sign in specific nerve deafness.

Francis P. Emerson, M. D.

THE USE OF THE BRONCHOSCOPE IN DIRECT EXAMINATION OF THE LARYNX, TRACHEA, BRONCHI AND ESOPHAGUS.

Dr. P. Schoonmaker, New York City.

The method of direct examination of the upper air passages has been practiced for many years. That of examination of the larynx trachea, bronchi and esophagus is of more recent date. Bozini in 1807, examined the upper end of the esophagus. Later Kussman, Mikulitz, Gottstein, Kirstein, Einhorn and others devised instruments for the examination and treatment of the esophagus and larynx.

Gustav Killian, of Germany, in 1897, devised a bronchoscope and succeeded in removing a foreign body from the upper bronchus by means of forceps passed through a straight tube inserted into the bronchus; thus demonstrating the feasibility of upper bronchoscopy. Later he improved his bronchoscope and used it in lower bronchoscopy. These were the greatest steps in endoscopy.

In 1904, Chevalier Jackson of this country combined the lighting principal of the Einhorn esophagoscope with the tube of Killian's bronchoscope, with which he was able to examine the esophagus and stomach. In 1906 he described his gastroscope and reported a series of fourteen cases in which he had obtained results of value from gastroscopy, including twelve cases with lesions, one without, and one case of extraction of a foreign body from the stomach. Many improvements have been made in the instruments first devised, making their use more practical and satisfactory.

The brilliant work of Killian, Jackson, Ingals and others, in removing foreign bodies, has led to the impression that tracheobronchoscopy is useful for this only. At the present time the bronchoscope is used more and more frequently for direct examination, diagnosis and treatment of diseased conditions of these organs. By use of the naked eye with this instrument we are greatly aided in diagnosis and treatment.

In upper tracheo-bronchoscopy the tube is passed directly through the larynx and trachea into the bronchi. In lower bronchoscopy a lower tracheotomy is done, and the tube passed through the fissure directly into the bronchus. One should be prepared in every case to do a tracheotomy when necessary, The method of direct inspection of these organs (trachea, larynx, bronchi and esophagus) for pathological conditions is of comparatively recent date, and has been of such wonderful assistance in the diagnosis, treatment, alleviation and cure of diseases of these parts, that we approach the subject with enthusiasm and commend this method of examination and treatment to the profession, hoping that they will further acquaint themselves with this method that added such brilliant result in laryngoscopy.

The x-ray and fluoroscope are of material aid in locating foreign bodies. With metallic substances the outlines are sharp and distinct, the character of the object defined, and its exact location outlined. In the examination for morbid growths the results are less definite.

In tracheo-bronchoscopy and esophagoscopy a local or general anesthesia may be used. The examination of the bronchi is perfectly feasible under cocain anesthesia, especially if a full dose of morphin and atropin be given. The morphin adds courage rather than anesthesia, and the atropin checks the secretion of mucus, that is so easily excited on any manipulation of the larynx and trachea and interferes with examination.

Chloroform is preferred to ether as a general anesthetic, as it excites less secretion than ether and can be more easily administered.

The new method of rectal anesthesia is ideal in many ways, as it does not interrupt the work or interfere with the operation, nor does it excite mucous secretion as with the other methods of anesthesia. I have used this method in work on the nose, throat, bronchi and esophagus with very satisfactory results.

Under cocain anesthesia the patient may be examined in an erect posture, but in general anesthesia the prone position should always be used.

The writer has employed the direct method for examination and removal of foreign bodies and morbid growths in the esophagus, trachea and bronchi, in structures and obstructions of the esophagus, in local ulcerations and inflammations in the larynx and trachea, and in securing specimens for microscopical examination.

The following histories are chosen to show the various cases in which the bronchoscope has been of invaluable use. In some of these cases the Schoonmaker bronchoscope was used with success after other instruments had failed.

Case 1: Papilloma of trachea. Louis N., age 26 years, born at Heidelburg, Germany.

History: When 8-years old he had diphtheritic croup, requiring tracheotomy, which was done by Dr. Czerny. The tracheotomy tube was removed on the eighth day. Some days later he was suddenly taken with severe dyspnea; the tracheal wound was reopened without anesthesia. Tube removed in ten days and wound healed by granulation. He consulted me in 1912 for difficulty in breathing which he first noticed six years after the tracheotomy.

Examination: General health good. Thyroids enlarged. Cicatricial scar in lower part of neck in median line. Bronchoscopic examination revealed tracheal growth partially filling tube.

Diagnosis: Papilloma in site of cicatrix of tracheal wound.

Treatment: Some time later the elongated papillar growth was destroyed with a specially made electric cautery tip, only one application being required. He has remained free from dyspnea since cauterization.

Case 2: Bone in esophagus. Harry K., age 36 years, Harlem Hospital, November 4, 1913.

History: On November 1st, while eating soup with noodles, swallowed a hard substance, which caused severe pain. He went to his physician who told him that the object had passed into the stomach, and that the pain was due to irritation of the esophagus. Four days later he was admitted to the hospital complaining of pain and inability to swallow solid food, and liquids were swallowed with difficulty. Had constant pain in median line over upper part of chest. Felt sure he had swallowed a piece of bone. X-ray examination was unsatisfactory, but showed dark object in esophagus opposite fourth or fifth dorsal vertebra.

We attempted bronchoscopic examination under cocain anesthesia. Object was seen deeply embedded in esophagus which was congested and swollen. The object was seized with the forceps and four unsuccessful attempts made to remove it. Patient nervous and much exhausted and bleeding obstructed the view.

The patient was put to bed, and two days later (eight days after the bone was swallowed) rectal anesthesia was administered by Dr. Lumbard, the esophageal tube passed and bone removed with difficulty, the forceps slipping off several times. The bone was triangular in shape with sharp edges and corners, one-quarter of an inch thick by one eighth, and one inch on side and base. Patient became cyanotic during operation and a lower tracheotomy was done by Dr. Haynes. Recovery uneventful.

Case 3: Pin in larynx. Mrs. F. E. S., age 30 years, referred by Dr. Steel.

History: While dressing, she placed some pins in her mouth; during a fit of laughter she aspirated one into the larynx; this caused severe dyspnea and coughing, and pain in swallowing and talking. Her physician was unable to remove the pin, and brought her to Dr. Steel who referred her to me.

Any attempt to examine the larynx with the laryngeal mirror caused severe pain and dyspnea with spasm of epiglottis and larynx, and I was therefore unable to get a view of the parts. Under thorough cocain anesthesia, I was able to use the split spatula of the Schoonmaker bronschoscope, draw the epiglottis forward, this brought the pin into view. It lay between the vocal cords, the sharp point embedded in the thyroid cartilage and its round head beneath the epiglottis. The pin was grasped with the forceps and easily removed.

The position of the pin readily accounted for the severe spasms on any motion of the parts in talking or on manipulation.

Case 4: Esophageal cancer. William B., age 40 years, referred by Dr. B., June 20, 1911.

History: Some three months ago he had some trouble in swallowing. This increased gradually until he was unable to take solid food, and liquids were taken with difficulty. He was losing weight and looked pale and anemic.

Physical examination failed to establish a diagnosis. He was placed in the Post-Graduate Hospital and kept under observation for a few days. The x-ray showed dilated esophagus in middle third with constriction and morbid growth in lower third. Examination of specimen secured by punch-forceps passed through esophageal tube of bronchoscope showed it to be carcinoma. Obstruction soon became complete and patient was unable to take liquids. A gastrostomy was done and food administered through canula. Patient rapidly failed and died two months later.

Case 5: Gold crown in right main bronchus. George B., age 72 years. Case brought to Post-Graduate Hospital by Dr. Quimby, October 27th, 1913.

History: While having gold crown placed on tooth, suddenly gasped and crown disappeared; coughing followed. Flouroscope showed crown in main bronchus open side up. Removed by Dr. Forbes under cocain anesthesia, 20 per cent, to larynx. No. 11 bronchoscopic tube passed, crown seen open end up. On second attempt it was seized with forceps and removed with bronchoscope. Remained in hospital over night. Was seen on October 29. Old bronchial rales present but no edema or irritation. No complications. This case was interesting in that the crown could be seen to move up and down as patient exhaled and inhaled.

Case 6: Open baby-pin in right bronchus. Martha G., age 13 years, December 1, 1913. Case referred by Dr. P. from family physician, with a history of having swallowed pin two days previous to operation. On the evening of the following day was admitted to the Post-Graduate Hospital. There was then no change in her voice. The next morning an x-ray picture was taken, showing the object to be in the neck, median line, lower end at about level of tracheal ring. Dr. P. asked me to be present as he thought object to be in upper esophagus and easily removable. Laryngeal examination before anesthesia failed to show object. Under ether, Dr. P. was unable to feel object with finger or reach object with ordinary forceps, therefore a noll tube was passed into esophagus and to stomach; no object was found; there was no trouble with respiration. It was thought to have passed into stomach. As a precaution, a No. 9 tube was passed into trachea and object recognized in right bronchus and removed by Dr. Forbes.

Case 7: Five-cent piece in esophagus. Clara G., age 17 months, admitted to children's ward, Post-Graduate Hospital, September 10, 1913.

History: Four days previous to admission swallowed a five-cent piece. Was unable to swallow solid food. X-ray examination showed object in esophagus. Under ether anesthesia object was easily removed with esophagoscope by Dr. Forbes. Uneventful recovery.

Case 8: One-cent piece in esophagus. Rudolph P., age 7 months, admitted to children's ward, Post-Graduate Hospital, August 25, 1913, care Dr. Forbes.

History: Swallowed one-cent piece three days previous to admission. There was difficulty in swallowing; regurgitations of milk. X-ray examination showed object. Unsuccessful attempt made to remove object without general anesthesia. Under ether anesthesia, object removed by esophagoscopy. Uneventful recovery.

Case 9: Safety-pin in esophagus. Murial Z., age 7 months, referred by Dr. S. Lloyd, May 6, 1913. Patient swallowed safety-pin four days previously. X-ray examination showed open safety-pin in lower end of esophagus. Under ether anesthesia, pin seen clearly; unsuccessful attempt made to close pin and turn it through tube. It was pushed into stomach and removed by gastrostomy Uneventful recovery.

Case 10: Metal pin, composition head, in trachea. Anna P., age 25 months, January 20, 1912. Admitted to Post-Graduate Hospital, under Dr. Forbes.

History: Swallowed pin five days previous. While playing in crib, sudden cough and cry. Mother put finger in back of mouth and felt sharp object as edge of pin. There was no trouble for two days, then there was coughing and expectoration of blood. Was taken to Hospital where x-ray examination located pin in trachea, head in bronchus. Two attempts were made, using Jackson instrument, but results unsuccessful.

On day of operation, June 20, seen at noon and operated at 4 p. m. Looks septic. Under chloroform, unable to locate object by direct examination, mucus and blood present, point of pin not seen. Tracheotomy (upper) done; pin was coughed out immediately through wound.

Subsequent history was one of a septic character. Patient's serum given auto-vaccine. There were multiple abscesses. Discharged from hospital two weeks later much improved; but one week from date of discharge, through an unfortunate accident, died.

Case 11: Tack in right bronchus. Morris J., age 34 months. Admitted to Post-Graduate Hospital, April 13, 1913.

Diagnosis: Right lobar pneumonia. Treated for this condition; fever, cough, expectoration with blood; looks chronically sick. April 20: Dullness over entire right lung posteriorly at apex and base; voice and respiratory sounds distant. Aspiration of pleura negative. April 23: Mother spoke of child possibly having swallowed tack. X-ray picture taken, showing tack in second division of right bronchus, head downward.

April 25: Dr. Forbes attempted removal unsuccessfully with Bruenings' bronchoscope, as instrument failed.

April 27: Operation with Schoonmaker bronchoscope: Foreign body seen, and removed under chloroform anesthesia. Brass-headed furniture tack. April 29: Respiration normal. April 30: Slight edema of old infiltration of lung. May 4: Discharged.

The interesting factors in this case are, a foreign body in bronchi causing pneumonia. The accuracy of the x-ray in locating and clearly defining the foreign body. The immediate improvement and final recovery after its removal.

Broadway and Eighty-sixth Street.

SYMPOSIUM--BACTERIN TREATMENT.*

THE USE OF BACTERINS IN THE TREATMENT OF DISEASES OF THE NOSE AND THROAT.*

DR. FIELDING O. LEWIS, Philadelphia.

Vaccine therapy, like all scientific discoveries of their day, is now engaging the attention of the medical mind the world over. Medical journals are filled with articles pertaining to its use in diseases of all the special branches of medicine, glowing reports are made, wonderful cures reported, and volumes have been written. Will it produce the gratifying results as vaccination for immunizing against smallpox, or will it meet with the adverse criticism as salvarsan has in the cure of syphilis?

If we are to believe the bacteriologist, therapeutic imperialism, which has been with us since the days of Hippocrates and Galen, fortunately will be a thing of the past and thousands of pharmaceutic preparations will be no more a means of financial gain.

Serum therapy and vaccine therapy would seem to be the logical products for determining the basic principles which underlie the action between the disease-producing agent and involved organism. With this as a working basis a great deal has been accomplished already and the future developments in its use seem promising.

The mucous membrane of the nose and throat, by reason of its functions and location, is the tissue of the body most exposed to the various disease-producting organisms. We are constantly inspiring air laden with bacteria, and the food which we eat often contains numerous colonies of these disease-producing germs. The bacteria which have been found most frequently are the staphylococci, streptococci, pneumococci, micrococcus catarrhalis, bacillus influenzae, bacillus of Friedlander, and various organisms morphologically resembling the diphtheria bacillus.

While a great many of the acute and chronic diseases of the nose and throat have been treated successfully with bacterins by many, yet my experience has been quite limited, and what our results have been is not a fair test of its value in some cases and its failure in others. In treating hospital cases it is almost impossible to continue treatments for any definite period of time, or is it possible to note the final results in but a very few, because of the fact that they are often prone to go from one clinic to another.

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*Read before the Philadelphia Laryngological Society, May 19, 1914

Case 1: I treated personally in my office a young lady, aged 35, who has had a marked atrophic rhinitis since early childhood and has been treated by various laryngologists, with no permanent improvement. I treated her with a stock catarrhal vaccine; she received two injections weekly, starting with half of a centimeter, and increasing to one centimeter. I could notice a slight improvement in the crust-formation and in the ozena after the third injection. She was given in all twelve doses and it has now been two months since the treatment was discontinued and her condition is the same to-day as when the treatment was started. Nothing was used at this time. in a local measure, except cleansing solutions in the nostrils.

Case 2: A young man, aged 30, had a history of acute rhinitis, coming on at frequent intervals as he stated, when least subjected to a draught. These attacks occurred equally in the summer and winter months. When I first saw him last August I found that he had a marked deflection of the nasal septum and enlarged obstructive tonsils. Both of these conditions were corrected but failed to give him any marked relief. I then tried to immunize him by the use of stock combined catarrhal vaccines. I administered first the vaccines made by a well-known manufacturer, giving him two injections weekly until twelve were given, with no apparent results. A few weeks later I tried vaccines made by another firm; the same number of injections were given, and it is now about three months since his last injection, and up to the present time he has had no acute attacks of rhinitis.

Case 3: Case of doctor who complained of having frequent attacks of colds in the head, in which the vaccines manufactured by a local firm have produced an apparent immunity, lasting one year.

In all. excepting accessory sinus cases, we have treated at the Jefferson Hospital Clinic ten cases. Five were treated by Dr. Lott and five by Dr. Hearn, assistants of the clinic. Seven of these cases were well-marked cases of atrophic rhinitis; out of these cases six were much improved and one slightly so. In two of these the ozena was practically relieved. The final results we are unable to give at this time on account of the cases not returning. There were two cases of chronic naso-pharyngitis; one was very much improved and one practically cured. There was a case of retarded resolution, following rhinitis. which was entirely relieved by one injection.

All of these cases were treated by stock combined vaccines, and the dosage and frequency were followed according to the directions given by the manufacturers. So far there have been no complications, excepting the case of atrophic rhinitis which I had in my office, which developed in the course of treatment an acute laryngitis, but which I did not attribute to the use of vaccines. There were slight local reactions in some of the cases and some followed by a slight chill and rise in temperature.

Personally I feel that there has been less success in the treatment of nasal disorders than there has been in chronic suppurative otitis media and chronic suppurative sinusitis. It has been the experience of some that in order to keep patients suffering with atrophic rhinitis in an improved condition it appeared necessary to continue the treatment indefinitely. So far as I have been able to determine by experience and by the experience of others, we have as yet no satisfactory index to dosage. Most of the writers deem it advisable to begin with small doses, that is doses which have been shown to do no harm as far as we can judge by clinical evidence. The injections are to be given from four to seven days apart, the size of the dose being increased slightly each time, and if there is no evidence of improvement from the treatment larger doses are recommended. If the reaction becomes marked the dose is diminished, and the increased dosage carried out less abruptly and at longer intervals.

As Dr. Simon states in his work on "Infection and immunity:" "There are no hard-and-fast rules to be laid down at the present time. The would-be immunizator must learn from experience and should not pay too much attention to 'negative and positive phases' when these are based on the feelings of well-being and on depression on the part of the patient. He should be neither of too optimistic nor of too pessimistic a temperament and should weigh the evidence with a calm, unbiased mind; in other words he must be an exceptional individual. I really know of no field in medicine at the present day where it is possible to draw so many erroneous conclusions regarding the value of a therapeutic agent as in the domain of vaccine-therapy in its application to chronic infections. Much good can unquestionably be accomplished, but we must be careful not to attribute all improvement to our immunizing efforts."

261 South Seventeenth Street.

VACCINE TREATMENT IN ACCESSORY SINUS SUPPURATION.*

Dr. Ross Hall Skillern, Philadelphia.

Previous Experiences: Several years ago I used autogenous vaccines on a small number of cases of chronic purulent ethmoiditis and while the immediate results appeared to show improvement the ultimate results were not sufficiently encouraging to warrant continuing their use.

Present Experiences: Within the past few months we have instituted treatment of sinus suppuration with stock vaccines. The number of cases treated were twenty. Frontal acute 3, chronic 4; ethmoidal chronic 8; maxillary acute 3, chronic 2. Injections varied from two to twelve. The quantity began at ½ ccm. and at fourth injection 1 ccm. No. 36 Sherman was invariably used. Formula: Friedlander bac. 300,000,000, microc. catarrhalis, 200,000,000 streptoc. 60,000,000, pneumon. 80,000,000, staph, aur, and alb, a. a. 200,000,000. In the acute cases two or three injections sufficed while the chronic cases always went to the full number.

Results Immediate: The results within two days were often so good as to delude one with false hopes. The local reaction where the injection was made was always marked from the first application, appearing as a greater or lesser soreness and stiffness in that portion of the arm or leg. Subsequent injections provoked this reaction less and less. The sinus condition was usually better although in the chronic cases the discharge was often worse and occasionally unaffected. The two or three subsequent injections seemed to bring continual improvement, and while this was real in the acute cases, in the chronic it was oftimes but apparent. Up to the present none of the chronic cases have been absolutely cured although many show great improvement.

End Results: *Frontal sinus,* acute 3, chronic 4, cured 3, benefited 2; not improved 2. *Maxillary sinus,* acute 3, chronic 2, cured 2, benefited (acute) 1, (chronic) 2. *Ethmoid cells,* chronic 8; cured 1, benefited 3, not improved 4. Total cured 6, benefited 8, not improved 6. Percentage of cures in acute, 5 of 6 or 86 per cent. Percentage of cures in chronic, 1 of 14 or 7 per cent. Percentage benefited in chronic 8 of 20 or 40 per cent. Percentage of absolute failures in chronic, 6 of 20, or 30 per cent.

Conclusions: 1. This therapy is of great value in acute cases which are slow in healing and tend to become chronic. 2. It should be a routine procedure in all chronic conditions which show a tendency to be of the latent type. 3. It should be administered after radical operations. 4. It offers the most hope in old operated cases which have not been entirely cured or have become reinfected.

2032 Chestnut Street.

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*Read before the Philadelphia Laryngological Society, May 19, 1914.

BACTERINS IN THE TREATMENT OF DISEASES OF THE EAR.[*]

DR. GEORGE M. COATES, Philadelphia.

When Wright, of London, published his now famous work of a few years ago on the opsonic index and vaccine therapy, it was generally thought that the end was almost in sight for which medical research had been working since time immemorial, namely a safe, sure and scientific cure for all diseases of bacterial origin. How this has failed of entire fulfillment we all know, but we are daily finding that most of our earlier disappointments were from misunderstandings of the workings of the agents we were using and from the fact that this form of therapy is not suited to all cases. Experience, furthermore, showed that the opsonic index which seemed destined to be a reliable guide to the dosage to be employed, failed because of its difficult technic and the consequent great variation in readings. To compensate for this loss, observers soon found that a close study of the clinical signs and symptoms following injections of bacterins was a more reliable guide and at the same time one open to the general practitioner and to those untrained in the more intricate laboratory methods. In the general application of bacterin therapy to all known diseases that followed the announcement of Wright's work, diseases of the ear were of course included, but the work done, in this country at least judged from the published reports, was sporadic.

Levy.[1] in 1909, reported a series of cases collected by him as follows: Acute purulent otitis media, cured 19; improved, 1; not improved, 4; total, 24. Chronic purulent otitis media, cured, 13; improved, 6; not improved, 5; total, 24. He does not state whether autogenous or stock vaccines were used nor mention the infecting organisms. Nevertheless, the proportion of cures is large and well worthy of serious consideration.

As an indication of the use of vaccines in serious complications of otitic disease a report by Graef and Wynkoop,[2] in 1910, of a case of lateral sinus thrombosis cured by this means is of interest. The case was one of ordinary acute suppurative otitis media followed by mastoiditis and operation and later on by the development of sinus thrombosis and bacteriemia. Injections of a stock suspension of streptococcus followed by the autogenous vaccine as soon as it could be obtained, effected a cure. In all, the case received twenty-three doses of vaccine aggregating 413 million organisms.

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[*] Read before the Philadelphia Laryngological Society, May 19, 1914

Dwyer,[3] in 1910, in a general report on vaccines, mentions a number of ear cases treated with autogenous preparations. In his cases of subacute suppurative otitis media he used suspensions of staphylococcus, streptococcus or bacillus pyocyaneus. Of those treated with staphylococcus vaccine 3 were cured, 1 improved and 1 not improved; with the streptococcus, 4 cured, 1 not improved; with the pyocyaneus bacillus, 7 not improved. In the case of the latter organism he says that this result was not unexpected "on account of the well-known cultural and pathogenic characteristics of this bacillus, it being one of low pathogenic power, at least for man, generally existing as a parasite, not being the primary invading organism but a secondary one." Thomas[4] says practically the same thing in regard to this bacillus. Dwyer further reports four cases of chronic suppurative otitis media of which 3 were cured and 1 not improved, and states that most of his ear cases were chosen from the subacute type because of the desire to obtain quick results, they being out-patient dispensary cases who could not be kept under observation for a long period of time; but that it is reasonable to suppose that chronic suppurations of the ear would yield as surely if not as quickly. Even where a necrosis of the bone is present, by stimulating the resistance of the body to the causative organism, the dead bone should gradually loosen and come away and a cure eventually result. Later experiences of other observers would seem to bear this out.

Still,[5] in 1911, reports 124 cases of middle-ear infection in infants and young children treated by vaccines with the following results: 70 cured, 22 improved, 24 lost track of, 5 not improved, 3 mastoid operations. Many of these were chronic suppurations of years' standing. It is interesting to note the causative organisms obtained and used in the preparation of the vaccine: Staphylococcus albus, 39; staphylococcus citreus, 12; staphylococcus aureus, 19; streptococcus, 26; streptococcus and staphylococcus, 12; diphtheria, 14; pneumococcus, 4.

Thirty cases of middle-ear disease treated by autogenous vaccines were reported in 1911 by MacDonald[6]. Thirteen of these were subacute cases, 12 caused by staphylococcus albus and 1 by pneumococcus. All healed promptly. In the chronic class there were 17 varying in duration from three months to thirty years. He reports 3 cured, 5 improved and 9 with no improvement. One of the cured cases showed a mixed infection of staphylococcus albus and bacillus pyocyaneus. He does not recommend vaccines as a routine measure in chronic cases but thinks they should be tried when other measures fail.

Huvelle[7] in an article on the present status of vaccines in the treatment of middle-ear disease in 1912, thinks they are very valuable as an aid to treatment, and that in most cases they will succeed in checking the discharge, and moreover, that they very much shorten the time of convalescence in the subacute cases and hasten the healing of wounds caused by the operation for mastoiditis.

In 1912 also I find a report on the subject by Christie[8] who advises the use of vaccines only in those cases which have resisted local treatment and then in addition to and not in exclusion of, such treatment. He believes vaccines have a great deal of usefulness in acute and subacute cases but that in the chronic variety their value is much restricted.

Sherman[9] considers that many cases of aural vertigo are due to changes in the middle ear and labyrinth caused by a microorganismal infection, even including the so-called sclerotic cases in this category. And he furthermore believes that in the great majority of instances the streptococcus is the primary invading organism, although it is often contaminated or even replaced by the staphylococcus. Acting on this theory he has treated cases of aural vertigo with injections of streptococcus vaccines (presumably stock), and reports a series of twenty cases successfully treated in this manner.

West,[10] of London, has used vaccines very successfully in furunculosis of the auricle and external canal, as have many other practitioners. He says that these cases of furunculosis are almost invariably due to the staphylococcus aureus, and that striking results are sometimes obtained with this vaccine in chronic eczema of the auricle. In acute suppurative conditions of the middle ear, he thinks vaccines never do harm if given with due caution and often excellent results are obtained. In lateral sinus thrombosis it is his custom to give streptococcic vaccine as the patient leaves the table after operation and claims that his mortality has been greatly reduced in this way. In contra-distinction to the observations of most of the other authors quoted, West has seen "immediate and remarkable success reward vaccine administration in cases of pyocyaneus infection."

Of great interest is the report of Weston and Kolmer[11] in the treatment of acute suppurative otitis media (scarlatinal) by bacterins. Their experiments were conducted in the Philadelphia Hospital for Contagious Diseases in 1910-11 and cover 100 cases in all but one of which autogenous vaccines were used. The organisms most frequently found by them in this class of cases were the psuedo-diphtheria bacillus, staphylococcus aureus and bacillus pyocyaneus in the order named. In all but fifteen cases dry ears were obtained in a much less average time than had been the case when other methods of treatment had been used. Under vaccine treatment 22.9 per cent of the cases were cured in from one to thirty days as compared to only 7.46 per cent by other methods. They conclude that the best time for beginning treatment of these cases is from the eighth to the sixteenth day of the discharge. The one case on whom a stock vaccine was used had resisted a pyocyaneous autogenous vaccine but yielded to a stock preparation of staphylococcus aureus and bacillus psuedo-diphtheria after the fourth dose and in spite of the fact that his ear had been suppurating for ten years. The technic employed by Weston and Kolmer was in most respects similar to that employed by Nagle and others which I shall describe in detail later on, except that, where there was a mixed infection, each organism was plated out and grown separately and then mixed afterwards, which allowed greater accuracy in dosage.

By far the most important work to us as aurists, in my estimation, is that done by Dr. Evelyn Wyman Nagle, of Boston. At the meeting of the American Laryngological, Rhinological and Otological Society in Washington in 1910,[12] she read a report of forty cases of chronic suppurative otitis media treated by autogenous vaccines with but one failure to secure dry ears. Two of these cases relapsed after intervals of one or two years. In the first case the child had removed from Boston so that a further trial of vaccines could not be made, but in the second this treatment was reinstituted with twenty injections and the ear was still dry after eleven months. Such a report as this was startling and was received by the profession with some skepticism. It was, however, the result of intelligent, careful and painstaking technic such as must always be employed in this form of therapy to obtain the best uniform results. I shall quote her own description of the preparation of the vaccine since it is the method employed by most skillful bacteriologists:

> "In making my vaccines I took the pus which was forced out into the aural canal from the Eustachian tube by catheterizing. The canal was previously cleansed with alcohol and dried. This discharge was smeared over the surface of the culture tubes and these tubes were then incubated at a temperature of 37° C. until the growth had nearly reached its height.
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> "The time of incubation varies according to the rapidity of the growth of bacteria. When the height of the growth is nearly reached it is washed down into the bottom of the tube, off the surface of the media, with normal saline solution under sterile conditions and collected in one tube. The tube is then sealed with the blow pipe and subjected to the lowest temperature for the shortest period that is possible to kill the organisms. The vaccine was then tested to see if it was sterile, and, if not, the tube was then sealed again and subjected to more heat. In staphylococcus vaccine six hundred million bacteria were put into every cubic centimeter of the vaccine, while vaccine made from other organisms contained only one hundred million bacteria to the centimeter. I put the vaccine in sterile bottles holding fifty cubic centimeters and sealed it with an inverted rubber nipple. The well thus made by inverting the nipple was filled with absolute alcohol to sterilize it before pushing the aseptic hypodermic needle through it to draw out the vaccine.
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> "It is quite essential to have an active vaccine. The activity depends on getting a virulent type of bacteria, on killing them at the right time, before they begin to lose their characteristics, and on subjecting them to the lowest degree of heat for the shortest time necessary to kill the bacteria."

The initial dose was small, one quarter of a cubic centimeter or a hundred and fifty million in the case of staphylococcic vaccine, increasing it to one-half, two-thirds and so forth at three-day intervals. Clinical observations replaced the taking of the opsonic index and were found satisfactory in judging the dose. There were no ill effects, a slight headache, malaise, depression, and once or twice nausea being the only symptom complained of. A sense of exhilaration comes on about twelve hours after this depression, lasts from two to two and a half days and is again followed by depression. The next dose is timed to be given as the exhilaration is beginning to wear off. The general physical condition of these patients improved under tratment and the vaccine was given about six times after the ear became dry to insure against relapses. It is to be remembered that all of these cases were of the chronic variety, had all had, and resisted, the ordinary forms of treatment, and in thirty-six of them the discharge had continued from one to forty years. Dr. Nagle also observed that often treatment with a staphylococcic vaccine alone would so raise the resisting power of the blood that the other bacteria present were killed at the same time as the staphylococci.

Nagle,[13] at the Ninth International Otological Congress in 1912, reported a further series of thirty cases. Only twenty-five of these should be counted, as the other five did not report regularly for treatment Of these twenty-five, twenty-two were cured at the time of writing and three were still under treatment greatly improved. This makes a grand total of sixty-five cases with but one failure, a truly remarkable record and one that should stimulate us all to do more of this work. Three essentials in this form of treatment are promulgated: the vaccine must be active, the period of time between doses so regulated that the power of resistance shall be raised each time and correct dosage used, but no rules can be laid down for these.

McKernon[14] has noticed that in all cases of mastoiditis following scarlet fever operated upon, healing is complicated by soft, flabby granulations with an excess of discharge, greater than that found in ordinary infection of the mastoid, and furthermore that the sutures sloughed, the healing was always protracted, and difficult, and that ugly scars usually resulted. He finds this to be true, in a lesser degree, in those cases of mastoiditis following measles. Since using autogenous vaccines prepared from the pus found in the mastoid cells in ten cases at the time of his report in 1910, all of his cases have healed rapidly and nicely, and compare most favorably in this respect with the average simple mastoid wound of other infections. He also found that in these cases there was a rapid disappearance of the ear discharge and restoration to normal of the middle ear and drum membrane. These scarlet fever cases showed the streptococcus. His average dosage was twelve millions for a child 2½ years old, for the initial dose, and increased every other day by six millions to a maximum of thirty millions. In older children with high temperature he started with fifty millions and diminished the dose as the temperature dropped. These results are in accord with those of Weston and Kolmer. quoted above.

The experience of the writer began about three years ago with the use of autogenous vaccines in acute and subacute cases and has extended to cover the chronic form of ear suppurations as well and also includes a rather large series treated with commercial mixed bacterins. To properly consider this subject, it is necessary to divide our cases into acute (including those ordinarily spoken of as subacute) and chronic, and to further divide these two classes into those treated by autogenous (or in some instances by laboratory stock) vaccines and those in which the commercial product was used.

I prefer to consider first the acute (and subacute) cases treated with autogenous or laboratory stock vaccines, as I have but a few cases to report and the history of one is the history of all. There were but five of these cases each starting as a severe acute suppurative otitis media; incision of the membrana tympani; copious discharge but without entire relief from pain or return of the temperature to normal. Moreover, there was in each case a well-marked mastoid tenderness, with some redness and puffiness back of the auricle, and a leucocytosis. This condition remained stationary for a week or ten days, when vaccine treatment was instituted. In two of these cases a laboratory stock vaccine was used (staphylococcic) and both cases cleared up after the second dose of two hundred million and proceeded to prompt convalescence.

In the other three where the trouble had continued for two or more weeks an autogenous staphylococcic vaccine was administered. Two cleared up at once; the other who received 900 million at a dose soon lost her mastoid symtoms but the ear was not permanently dry for three weeks.

It must be borne in mind that in treating these acute cases too much credit for the cure may be given the vaccine. Many of the cases heal either spontaneously or with ordinary drainage and cleanliness, so that it is often impossible to say positively that the cure was the result of the treatment, especially in such a short series of cases as here presented. Nevertheless, it is the opinion of the writer that this was the determining factor in each case, as the disappearance of the persistent mastoid symptoms was prompt and permanent. One of these cases had been urged to have a mastoid operation and had refused, and the bacterin treatment was administered as the only alternative.

In chronic ear suppuration it is much easier to say definitely that a given treatment is efficacious or not, but even here, many cases are of the intermittently discharging type so that unless we can, in spite of discontinuing other forms of treatment, secure prompt cessation of the discharge and can, by observation over a long period of time, assure ourselves that it has not returned, we can only keep the method *sub judici*. The chronic suppurations here reported are few in number. and were not very satisfactory patients because of their tendency to become discouraged, their objection to the hypodermic needle and the severe type of middle-ear disease present. They were cases that had successfully resisted other forms of treatment and had been discharging from one to fifteen years.

Case 1 discontinued treatment after two doses very much improved, but we are unable to trace her to determine the final result. She showed a pure culture of staphylococcus and was given doses of 100 millions at six-day intervals. She was 2½ years old and one ear had discharged for one year.

Case 2: Boy, 9 years old; both ears discharging since infancy. Great destruction of the tympanic membrane. Cultures showed bacillus psuedo-diphtheria and bacillus pyocyaneus. He was given 730 millions at intervals of three and four days at first and showed improvement from the start, being discharged with dry ears in eight weeks.

Case 3: Girl, age 5; discharging ears, very foul since infancy, masses of granulations filling each canal. Culture showed psuedo-diphtheria and staphylococcus and the dosage was 250 millions at four day intervals. Later in the case the staphylococcus was replaced by the bacillus pyocyaneus. She is still, after four months, under treatment, having been rather irregular in attendance, and the ear still suppurates, although very much reduced in amount. The foul odor also persists, but the granulations are almost gone. I believe that, while she is a failure at present, we may yet obtain a dry ear by persistent treatment.

Case 4: Girl, 17 years old, having a discharge from the right ear for fifteen years with destruction of the drum and granulations. The infection proved to be diphtheria bacillus, type D, and she was given 700 millions at intervals of one week. The discharge lessened after the first few injections and the ear was dry in ten weeks.

Case 5: Girl, 7 years old, with profuse discharge from the ear for two years, having resisted all treatment showed staphylococcus and pyocyaneus. The record of the dose in this case is lost but the ear became dry after six injections.

These cases, with one exception, have not been dry for a long enough period to be able to say definitely that they are cured, but the fact that they became dry at all or even improved is a decided gain.

The treatment of any disease by mixed commercial vaccines on the old-fashioned shot-gun principle has been universally condemned by most writers as unscientific and dangerous, and it was with some hesitancy and considerable skepticism that the writer decided to try out this form of treatment in cases of suppurative otitis media. It was done for the following reasons:

The general practitioner or specialist throughout the country and in the smaller towns and cities has not access to a laboratory where he can have the infecting organism determined and have a vaccine prepared, neither has he the time, apparatus or the technical knowledge to do it himself. Furthermore, many patients even in the larger cities cannot afford the expense of these examinations and yet are not of the class willing to go to the dispensaries as charity patients. While without doubt the use of an autogenous vaccine, properly made, is the only true scientific way of treating these cases from the standpoint of vaccine therapy, it occurred to the writer that if it could be determined that the mixed commercial bacterins, used empirically, had value, it would be a great boon to many a practitioner of medicine and many a poor but worthy patient, since the cost of this form of therapeutics is little and the administration easily performed.

The conditions under which this trial was carried out were therefore made precisely similar to those of cases treated in the heart of the country districts and were made as rigid as possible. In other words *no* other treatment was given, the causative organism was not ascertained by culture and the dosage was made dependent on clinical observation. The Social Service Department was of great use to us in bringing back for observation and treatment, cases who became negligent about regular attendance, and its workers are most enthusiastic about this method. The cases were taken just as they presented themselves, acute, subacute or chronic, and many of them were those who had run the gamut of methods of treatment, other than vaccines, without result. I shall not give the detailed histories at this time as this is merely a preliminary report on this phase of the subject, and a summary of the results obtained is enough for a paper of this description.

Two formulas were used chiefly, as follows: The first contained Friedlander's bacillus, 300 millions; micrococcus catarrhalis, 200 millions; pneumococcus, 80 millions; streptococcus, 60 millions; staphylococcus albus, 200 millions; staphylococcus aureus, 200 millions, per cubic centimeter. The second formula was: Streptococcus, 100 millions; pneumococcus, 100 millions; staphylococcus albus, aureus and citrius, each 200 millions; and colon bacillus, 200 millions.

The technic was simple: The arm was scrubbed with alcohol and the injection given just beneath the skin and above the elbow. This was repeated at forty-eight-hour intervals in the acute cases, and at three or four day intervals in the chronic ones, alternating from one arm to the other. If results were not obtained after a few injections with one formula the other one was tried, and sometimes the two formulas were used alternately. The only reactions observed were the hyperemias surrounding the site of the injections for the first two or three doses, usually fading out in twenty-four to forty-eight hours. Eleven cases showed no hyperemia at all, and in three it was intense and accompanied by considerable induration, which, however, subsided in one or two days without any further treatment than another injection of the same vaccine at the same place on the same arm.

In the acute cases the best results were obtained by giving slightly larger doses at shorter intervals, namely forty-eight hours. The average initial dose for all types was 0.2 ccm. for children under 3 years of age, 0.3 to 0.4 ccm. for those from 3 to 6 years, and 0.5 ccm. for all over that. This dose was doubled at the second and third injections and, when the ear became dry, two injections of the maximum dose were given at three-day intervals to ensure permanency. In small under-developed children the dose was made smaller than that I have just mentioned, and the maximum dose for adults was about 1.5 ccm. In the favorable cases an increase of discharge was noted after the first and sometimes after the second injection, but the discharge became more serous in character. In the majority of cases the external canal was only damp after the third or fourth injection and dry at the fifth.

Sixty-three cases were treated altogether and of these fifty-six were apparently cured, although several of them became dry, relapsed, usually through non-attendance, and then, on resumption of the treatment, again became dry. Two cases were improved only, and five were unsatisfactory. These five cases were all of a severe type with fetid discharge and granulations. These were cultured out to determine the cause of the failure and gave the following results:

One showed diphtheria bacillus and pneumococcus, one tubercle baccilli and pneumococcus, and two pneumococcus and bacillus pyocyaneus. They are now under treatment with autogenous vaccines.

While none of these cases has been dry for a long enough period of time—six months being the maximum—to say that they are permanently cured, yet the results obtained are sufficiently striking to warrant further trial of this easy method, particularly as no bad results have been observed. It has also been used in a number of acute cases in private practice with uniformly good results although these are not included in the above series. In the series of dispensary cases, seventeen were acute or subacute (several with mastoid tenderness) and forty-six were chronics extending over periods varying from six months to many years' duration.

The writer desires to express his appreciation of the help given him by his assistants, Dr. William Nichols at the Polyclinic and Dr. Leslie F. Mulford at the Pennsylvania Hospital, who did much of the actual work under his direction, and to the enthusiastic co-operation of the Social Service Department of the latter hospital and the attendants at the Children's Bureau. The majority of these cases were returned for final observation a short time since by these agencies and the results verified. They reported that those whom they were unable to induce to return excused themselves by saying that they were well, that their ears were dry and that they could not afford to take the time from work or school to come to the dispensary.

After careful consideration of the work of others and from his own limited experience in the bacterin therapy of aural disease, the writer has reached the following conclusions as to the value of this method which he now offers for your judgment: In view of the results quoted above, it can scarcely be doubted that this form of therapeutics is destined to play an important part in the practice of otology. Theoretically autogenous vaccines should prove the most useful since they are the most scientific, and where obtainable should be used, but it takes a skillful bacteriologist to make a potent vaccine, and if it is not potent, failure will result. Many hospitals and other laboratories keep on hand stock suspensions of the more common varieties of bacteria for use in emergencies where time will not permit the making of an autogenous vaccine, which often takes four or five days, and these stock vaccines may be of much value where the invading organism can be determined. In many cases, however, it is expedient to use a mixed commercial vaccine without such determination and it has, I think, been shown that good results can be obtained by this means. But this vaccine must also be potent, which means that the firm producing it must be a reliable one, employing very skillful bacteriologists. Either of these methods seems to give nearly perfect results in acute and subacute cases, and that either may give the same results in chronic cases seems to be shown by the two series of cases (Dr. Nagle's and the writer's) reported above.

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1736 Pine Street.

THE DEAF

Their Education—Improvement of Conditions—Responsibilities and Participation of the Profession.

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The aim of this department of THE LARYNGOSCOPE will be to bring to the notice of its readers from month to month, facts that may be helpful to physician and patient in dealing with the life-problems involved in deafness. Suggestions from readers will be gladly received and all questions answered to the best of our ability.

THE EDUCATIONAL NEEDS OF THE DEAF.

(Continued from the May, 1914, issue, page 546.)

A concise summary of information for the guidance of physicians, in procuring for their deaf patients the requisite educational treatment supplementary to medical and surgical relief.

Class 1. Group B. Children and young people of school age: Very few of the public schools for the deaf will accept pupils as young as 5 years of age. Yet that is the proper time for an otherwise normal deaf child to begin regular school instruction in speech and language. Previous to 4½ or 5 years of age the child has not sufficient mental grasp and maturity to benefit to an adequate degree from the skilled instruction of the trained and experienced teacher. Up to that time the parents, under the guidance and advice, perhaps, of a teacher, can do what is necessary for the child.

Group B may be divided into five classes: 1. Those with hearing slightly impaired from infancy. By 5 years of age even very slight deafness will have produced marked results. If speech has been acquired, it will be more or less imperfect, especially in those sounds whose formation is less evident to the eye and whose sound is less clear and penetrating; for example, the Ks and Gs, and the accurate distinction between the more similar vowel sounds. The child's vocabulary will be small and its mental development behind its years. The greater the degree of deafness, and the earlier it occurred, the more marked will be these characteristics. Of course, the physician's examination will previously have excluded other causes of defective speech, such as cleft palate, tongue tie, partial pharyngeal paralysis, extraordinary adenoid growths, etc.

When the child is otherwise normal, mentally and physically, and but slightly deaf, the permanent correction of its speech and the normal increase in its vocabulary is not a difficult matter for the trained and experienced teacher. But unless such special attention is given early, the unfortunate effects of slight deafness are cumulative.

Even while the physician is using all remedial devices for the hearing, the speech-teacher's aid should be invoked.

2. Those with hearing seriously impaired from infancy: In these cases the effects upon speech, vocabulary and mental development will be still more marked. Very little, if any speech will have been acquired, and that will be very imperfect.

Even if the deafness seems likely to yield to remedial treatment some time would naturally be required, and the removal of the unfortunate results of the previous lack of hearing will in itself require the assistance of a trained teacher. Therefore, the physician should urge the parents to secure the co-operation and help of some person experienced in teaching the deaf by the speech method, even while he is conducting his own measures for removing the cause. The more promptly this assistance can be rendered the more rapid and satisfactory will the results be.

If the hearing cannot be restored or improved, then the trained teacher of speech is the child's only hope of acquiring the ordinary means of communication, and such education should be arranged for at once.

The physician should, however, impress upon both parents and teacher the very great desirability of educating and developing the residual hearing-power possessed by the child, no matter how slight it may be. This auricular development is often neglected and a valuable aid to speech and mental development thereby lost.

3. Those totally deaf from infancy: These children will never learn to speak or understand when spoken to unless they receive special instruction. The ear is the natural teacher of speech. Without it speech is never acquired except by patient and skilled teaching. Such teaching can only be successfully accomplished by those who have had much training and experience in this work.

The situation of a deaf child differs very much, from an educational standpoint, from that of the little hearing child. Two hours a day playing educational games in a kindergarten is as much as is usually given or is needful for the little hearing child up to 6 or 7 years of age; and his mental development and success in after life will not be seriously endangered if even that is omitted and he does not begin to go to school until he is 8 or 9. The hearing child of 8 who has never been in school and cannot read or write, has, nevertheless, without conscious effort, mastered the two most important educational tasks in life. He has learned to speak and has acquired the greater part of his working vocabulary. In other words, although he has never been across the threshold of a school, his education is well advanced for his years and mental development.

The situation of the uninstructed deaf child of 8 is very different. The task which it has taken the hearing child 8 years to accomplish, the deaf child of 8 has not even begun. He cannot speak a word; he does not even know that there is such a thing as a word. He is eight years behind his hearing brother, and even if he starts now, unless some means can be found for aiding him to overtake his brother educationally, he will be only eight years old in education when he is 16 years of age. And when he is 16, the psychological period will have passed for acquiring what he should have learned when he was 8. The fact that the child is deaf does not exempt him from the inexorable laws of mental psychology and heredity. In the development of the human mind there is a certain period when all conditions are favorable for the acquisition of speech and language. Unnumbered generations of ancestors acquired speech and language at that stage of their mental development, and this little deaf descendant's mind obeys the law of inherited tendencies.

If the speech and language-learning period, from 2 years of age to 10, is allowed to pass unimproved, the task of learning them later is rendered unnecessarily difficult. Every physician can appreciate the force of these facts.

Therefore, in the case of the little deaf child, the years from 2 to 10 are crucial, and of far greater educational importance than the same period in the case of the hearing child.

If a proper school for the little hearing child of 5 did not happen to exist in his immediate neighborhood, no one would think of insisting upon the necessity of sending the little one away to a distant boarding school. But that is what must be done in the case of the little deaf child, if precious and irrecoverable years are not to be lost. It is often a difficult matter to persuade a mother to sacrifice her own personal happiness and comfort in having the little child with her, and to look far enough into the future to see that a true and unselfish love for the child requires her to entrust him to the care of others during these early and crucial years. This is one of the tasks that the physician should set himself in the cases that come under this third group of Class 1.

Because of the extreme importance of these beginning years in the life of the little deaf child, it is a serious responsibility to assume the task of teaching him. Unfortunately, it is a responsibility that is rather lightly assumed by some young women inadequately trained and without much experience. The highest skill and widest experience on the part of the teacher are more necessary during the first three years of the child's educational life than at any other period. Yet mothers will often entrust their little children at this crucial time to inefficient young women who are willing to come to their homes, rather than to part with the child and place him under more skilled and experienced teachers in a well organized school.

The teaching which the little deaf child receives during the first three years of his educational life is of vital importance to him. He needs then, as he will never need again, the highest skill and the greatest experience. Many a child's chances have been ruined by poor teachers at the start.

4. Those rendered partially deaf by accident or illness after speech has been acquired: The condition of these cases when the physician sees them will depend, so far as speech and education are concerned, upon the length of time that has elapsed since hearing was impaired.

If there has been a considerable interval, then in all probability some deterioration in speech will be observed and there will be a falling behind in school work. If the physician has been consulted promptly and if his advice is carefully followed, the patient's speech can be kept uninjured, the brain can be trained to supplement the ear by means of the eye, and education can be continued without interruption. The success with which the effects of adventitious deafness upon speech and mental development can be overcome depends upon the promptness with which the work of the trained teacher is begun. Even while the patient is still under the care and treatment of the physician it would be well to call in some experienced teacher, though it be for only a few minutes a day, in order that there may be no opportunity for laxity of enunciation to creep in, and that there may be no interval of interruption in studies. In this way the transition from the old to the new condition is made almost unconsciously, and with the least possible loss and annoyance.

5. Those rendered totally deaf by illness or accident after speech has been acquired: All that has been said under the fourth head-

ing holds true with additional force where total deafness has occurred. The deterioration in speech that will inevitably follow, the interruption in school life that must occur, are both more swift and more severe where the patient no longer hears at all. It is often astonishing how immediately a loss in clearness of pronunciation occurs following the loss of hearing by such causes as scarlet fever, meningitis, mumps, etc. The younger the child the more rapidly deterioration takes place, but even young people of 16 or 20 soon suffer some loss in normality of speech. So far as school work is concerned the interruption is immediate and complete, for without hearing the pupil finds it impossible to meet the conditions of the ordinary school.

The alert and thoughtful physician knows this and will at once advise his patient to take prompt measures to forestall loss of clear enunciation, and to make the transfer from the ear to understanding by means of the eye. In the case of young people this transition can be made in a few months, and with but little interruption in education.

Two Cases of Suppurating Meningitis of Otic Origin. Followed by Cure. G. COULET, *Rev. hebd. de Laryngol.*, May 2, 1914.

The first case reported is one of chronic suppurating otitis media accompanied by osteitis of the antral wall and tympanum with erosion of the labyrinth and infection of the perilymphatic space. The radical operation liberated the pus and ended the infection of the labyrinth, while the repeated puncture of the lumbar cul-de-sac eliminated the bacteria colonizing in the cephalo-rachidian space. The second was a case of suppurating meningitis consecutive to an acute otitis media followed in a month by a severe relapse, which was finally cured by three lumbar punctures in two of which an injection of electrargol was made. These two cases show the possibility of a complete cure in suppurating mastoiditis. They demonstrate, moreover, that lumbar puncture forms not only a useful means of aiding the diagnosis, but also that it has distinct therapeutic value.

SCHEPPEGRELL.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular Meeting, April 22, 1914.

DR. J. HENRY GUENTZER, Chairman.

Retro-esophageal Abscess Due to Infection from a Foreign Body. DR. ERNST DANZIGER.

The patient was a middle-aged woman who had swallowed a chicken bone which seemed to stick in the esophagus at the depth of the fourth rib. The family physician promptly introduced a stomach tube to press it down; this procedure seemed to relieve her. The sticking sensation was renewed the next day and she sought the help of a laryngologist who examined the larynx, epi-pharynx, pharynx and hypo-pharynx without finding anything. He saw her during the next two weeks, and finally incised the left arytenoid which seemed edematous. At that stage she became feverish and could not swallow even a drop of water which she said would not pass that painful spot in her gullet. She was brought to me in that condition. Under cocain anesthesia an esophagoscope was introduced; there were normal conditions for about seven inches beyond the teeth and then the esophagoscope was arrested by a swelling of the mucous membrane which seemed to come more from the posterior wall. During a gentle attempt to pass the swelling the tube became entirely filled up with pus of such fetid character that the nurse was almost overcome. Quite a large amount of pus was evacuated after the tube was withdrawn. Later another attempt was made to pass the tube, and this time it was passed almost to the cardia. On withdrawing the instrument slowly the pus could be seen escaping from an opening in the posterior wall of the esophagus. The woman was sent to the hospital with a grave prognosis. When seen the next morning she was again not able to swallow, and another quantity of pus was evacuated as on the previous day. Twelve hours after the second evacuation an x-ray was taken, which showed a large shadow originating from the esophagus at about the fourth rib and reaching up almost to the pharynx. As the pus had been drained, the shadow may have represented a mass of infiltration. After the second procedure the patient's temperature became normal within a week and she was able to swallow soft food. She has made an absolute recovery.

The abscess, fortunately, must have been walled off from the mediastinum, and probably was a large abscess due to broken-down glands.

DISCUSSION.

DR. CARTER said that the case resembled one of which Dr. Lynah had shown a specimen some three or four months ago. The patient had an abscess of the esophagus which had not been recognized. He had been suffering from edema of the larynx and had been intubated by an ambulance surgeon. Dr. Lynah took out the tube for examination, whereupon the patient began to suffer from dyspnea. He then did a tracheotomy, which also opened up the abscess cavity and the patient was promptly suffocated by pus from the abscess. Dr. Carter said that in discussing the case he had suggested that the abscess was due to a foreign body which had perforated from the esophagus and had caused the abscess. He thought then and still thinks that he discovered the point of entrance where it penetrated the esophagus wall. These instances should be borne in mind in dealing with cases of foreign bodies lodged in the esophagus.

Dr. White said that on the same evening to which Dr. Carter referred he had presented a patient with a similar condition as the one now being discussed. In his patient the abscess followed the lodgment of a piece of bone in the throat. The abscess although opened repeatedly did not drain well and finally an external esophagotomy was performed followed by healing. When presented, a left-sided paralysis of the vocal cord was present, which since that time has disappeared. Two other cases of abscess of the throat had been treated by him within a short time during Dr. Harmon Smith's service at the Manhattan Eye, Ear and Throat Hospital. These however did not follow foreign bodies but fulminant tonsillitis. Ordinary incisions were of no avail as the phlegmons descended from the tonsils, threatening occlusion of the larynx. In each patient deep incision external to the angle at the base of the epiglottis and base of the tongue of the affected side was followed by free discharge of pus and fairly rapid recovery.

Dr. Thurber said in this case the time-element was an important factor. It was perhaps fortunate that the doctor did not see the case until the abscess wall was ready to break through and thus afford easy drainage upon rupture by pressure with the instrument. However, he would not be understood as advocating waiting in all cases until some exploratory incision were made. These cases all demanded very close watching.

A Case of Recurrent Naso-pharyngeal Fibroma. Dr. Hubert Arrowsmith.

(Dr. Arrowsmith being prevented from attending the meeting, asked Dr. Freudenthal, who had been with Dr. Arrowsmith when the patient was operated upon to present the case.)

Ernesto Fiasco, age, 20 years; single; occupation, rag man; Italian. In May, 1913, the patient noticed that breathing through the left side of his nose was becoming difficult. This difficulty gradually became worse and in six months the left side of his nose was completely stopped up. He entered the hospital November 17, 1913, when the growth was removed from the naso-pharynx, a preliminary tracheotomy being performed. Oil-ether colonic anesthesia was successfully employed.

After one month of comparatively free nasal breathing, the left side presented the same trouble as before and at the end of two months both sides of his nose were so completely occluded that he was compelled to breathe through his mouth. He has experienced occasional dull pains in his nose and left side of his face and head. His weight, appetite and strength were not disturbed prior to the second operation.

Family history, negative. Personal history: Has always been in good health previous to the present trouble. Does not smoke; drinks moderately; Wassermann, negative.

The second operation was performed on March 24, 1914. Tracheotomy and ligation of the external carotid artery were done first. Then an incision was made extending from the glabella along the base of the nose on the left side and through the left ala at its attachment. Another incision was made at right angles to the first, beginning at the mid-point of the initial incision and extending outwards for a distance of 2.5 cm. The soft tissues were dissected from the bone *en masse* and the nasal flap was turned upwards. The left nasal bone and the nasal process of the superior maxilla were resected in order to obtain freer access to the tumor. Masses of a grayish-white, rather tough tissue, were extracted by means of forceps. Bleeding was profuse notwithstanding the preliminary ligation of the external carotid. The hemorrhage was controlled by means of gauze packing. Gwathmey's oil-ether method of rectal anesthesia was used again with entire satisfaction.

Pathologist's report: November 17, 1913, pure fibroma dura. March 24, 1914, same as November 17, 1913, only fibers were more loosely arranged. DR. F. HULST.

DISCUSSION.

DR. FREUDENTHAL: The bleeding was very great but it was checked. The case was operated upon under the Gwathmey oil-ether rectal anesthesia which worked remarkably well. The patient had a few whiffs of ether before he got fully under the anesthetic, but after that slept quietly throughout the operation. I feel quite enthusiastic about this method of etherization for laryngological work. I have seen it employed a number of times and the results are very satisfactory indeed.

DR. COCKS said that the results of the operation seemed to him very satisfactory. He believes that intra-tracheal insufflation is the ideal anesthetic for cases of fibroma of the naso-pharynx. This method has two advantages: (1) It allows the larynx to be packed off with gauze, thus preventing blood from running down into the trachea; (2) it does away with the necessity of performing tracheotomy, an operation always attended with danger to the patient.

DR. GUENTZER said that in looking at this case it struck him that Dr. Kuhnt's method of peroral intubation for anesthetic purposes would be practical in these conditions. Among a number of cases in which this intra-tracheal anesthesia was used, Kuhnt reported quite a few of nasal fibroma. The procedure for operation was not external, but he split the soft palate across from the last molar down on either side, and claimed that he could get as much space that way as by the external operation. He himself had had no experience with the operation but it had impressed him as a very good method and one that possessed the advantage of not leaving a scar.

DR. FREUDENTHAL said that he also had read about Moure's operation, and the idea impressed him as a very good one. He has now under observation a case which is being treated with radium, and he may have to do this operation after all.

In regard to the method of anesthesia mentioned by Dr. Cocks he would only say that we need all the space we can get in the mouth, and for that reason we should not be afraid to do a tracheotomy, especially as in this instance the tracheotomy had already been performed. Dr. Gwathmey's method of anesthesia is very easy to apply. *You simply leave the patient alone.* In this instance the patient was under the influence of the anesthesia for an hour or more.

Successful Removal of Thyroid Gland Weighing 602 Grammes from Girl Thirteen Years of Age. Presentation of Patient and Specimen.

DR. W. W. CARTER.

The patient, a girl of 13, came under Dr. Carter's care in the latter part of January. She was suffering from an enormous goiter, the largest he had ever seen in a child of her age. Her personal history was interesting. She had been perfectly healthy up to 10 years of age when her parents noticed a beginning enlargement of her throat, and from that time on the gland grew very rapidly. When first seen she was a little nervous and had a slight ophthalmos. Her grandmother on the father's side had had a goiter, but beyond that the antecedent history had no bearing on the case. The gland reached practically from the chin to the supra-sternal notch, overlapped the sternum and reached up to the mastoid process on either side. The tumor was soft and seemed almost like a fluctuating tumor. It pulsated synchonously with the heart. The superficial veins were very large, and there was every evidence of its being an extremely vascular tumor. The girl's general condition was good, her color was good, she weighed 115 pounds, and seemed healthy. She had no trouble except that when walking fast or going up the stairs she would be short of breath and would cough; the cought was croupy in character. It was easily seen that there was pressure on the trachea. Examination of the chest was negative, excepting that the heart was shown to be hypertrophied; the apex beat was a little beyond the nipple line, and the murmur was evidently a hemic murmur; there was a soft blowing murmur heard with the first sound of the heart. The pulse beat ranged from 120 to 150.

When she first came under observation she was convinced that she would choke to death if the tumor was not removed.

She was operated upon on February 3, an incision being made from the middle of the inner border of the sterno-cleido-mastoid to a corresponding point on the opposite side of the neck. The gland was dissected out and removed in capsule. It was found to be very vascular, some of the veins being as large as a man's little finger. The gland was removed without much hemorrhage, for the vessels were tied off as the operation proceeded. The tumor was in three distinct lobes and weighed 602 grammes when it was removed. The specimen presented has shrunken very much since being placed in the preserving fluid. A piece of the gland the size of a walnut was left in place.

The patient made an uneventful recovery and was out of the hospital in about twelve days. Thorough drainage was obtained by means of large tubes which extended up on either side of the trachea and discharged through the small opening left at the supra-sternal notch. Primary union was obtained throughout.

An x-ray picture shows a considerable enlargement of the heart, but apparently no enlargement of the thymus gland as sometimes happens in these conditions. The pathological report was ordinary multilocular cystic colloid thyroid.

An interesting point in the case was the tachycardia which still persists to a slight degree. It is a question what is causing it. It might be due to a deficiency or over-abundance of thyroid secretion, or it may be due to a change in the chemical constitution of this secretion. It may be caused by the pressure of the tumor on the pneumogastric nerve disturbing its inhibitory influence on the heart, or the pressure on the sympathetic nerve may have acted as a stimulus to its cardiac accelerator fibers.

DISCUSSION.

Dr. Freudenthal inquired where the girl was born.

Dr. Carter replied that the girl and her mother were both born in this country.

Dr. Cocks asked if the exophthalmos had disappeared.

Dr. Carter replied that it had to a certain extent. It seemed that this might be one of the border-line cases between the ordinary cystic goiter and Graves' disease.

Broncholith Removed from the Trachea and Right Bronchus. Dr. Sidney Yankauer.

The patient was a young man, 37 years of age, who came to New York from Texas with the following history: In January, 1910, he had an attack of typhoid fever followed by hoarseness and dyspnea, so that an emergency tracheotomy had to be performed. He was then sent to New Orleans, where a tracheotomy tube was fitted, after an attempt was made, unsuccessfully, to remove the tube permanently. Some time later he went to San Francisco where another unsuccessful attempt was made to remove the tube. The surgeon in New Orleans stated that the wound was made too high up, and that this fact accounted for the difficulty in removing it. The patient continued to wear his tube and was contented until last summer when he developed a growth on the lower lip which was examined by a surgeon in Texas and pronounced to be a carcinoma. This was operated upon in November and half of the lip was removed. The patient recovered from the operation, but about a month or six weeks later he began to cough and suffered from dyspnea and pain in the lower part of the sternum. A radiograph was taken but showed nothing. Then a bronchoscopic examination was made and the bronchoscopist stated that there was a small growth the size of a pea on the posterior wall of the trachea which extended into the bronchus; he diagnosed the case as carcinoma of the lung.

The patient then came to New York with the idea of having Dr. Willy Meyer remove the carcinomatous lung. The patient's father was a physician and brought the young man on with a full knowledge of the danger of the operation. The patient was in such pain and suffering so much that he was confined to bed and was unable to sit up. He had been taking one-eight grain of heroin hypodermatically every two hours to relieve the pain, and during his journey from Texas to New York had been taking one-fourth of a grain in order to keep him reasonably comfortable. When he reached New York he was admitted to the hospital and preparations were being made for the operation when Dr. Meyer asked me to inspect the trachea and confirm the diagnosis.

An examination was made under local anesthesia and as soon as the lower part of the trachea was reached the presence of a foreign body was immediately recognized. It presented a vertical edge which looked not unlike the spur at the bifurcation of the trachea. There was a mass of granulation tissue posteriorly. Pressure with a probe confirmed the diagnosis of foreign body. This was removed. After the removal of the foreign body the bifurcation was clearly visible, but there was no appearance of carcinoma.

The foreign body had a curved shape, and the two ends were embedded in the mucous membrance, the one in the right bronchus and the other in the trachea. At the point where the ends rested there was a mass of granulation tissue.

After the removal of the foreign body the cough ceased. The patient was able to sit up the next day for the first time in several months and in a week went home.

An interesting feature in this case was the curved form of the foreign body resembling the portion of a tube. Upon examining the tracheotomy wound it was evident that the anterior half of the cricoid cartilage was missing. All that could be seen was a small remnant of the cricoid, posteriorly. Examination of the larynx showed that the left arytenoid was displaced forward and was connected with the posterior surface of the epiglottis. The vocal cord could not be seen. The opening from the tracheotomy wound into the larynx was very small. An examination of the foreign body showed that it had the same appearance and structure as a rhinolith. It looked as though it was the remains of the cricoid cartilage, and it would seem that during the typhoid fever a piece of the cricoid cartilage split off and lodged in the trachea, and during the few years following it changed into lime salts. Then during the operation for the carcinoma of the lip probably some irritation was set up where it was lodged, and in addition to that a shred of gauze was caught on the foreign body, and in swaying back and forth in the air passage it caused the irritation which produced the coughing and bleeding. A body of this kind is exceedingly rare. The number of broncholiths reported in the literature is very small, and the case is one of extreme interest.

DISCUSSION.

DR. GOENTZER asked if it might not be possible that the foreign body formed on the tracheotomy tube.

DR. YANKAUER replied that that was possible, but that the patient was very careful about his tube and kept it very clean, and there was no evidence of concretion around the tube. It was as clean a tube and wound as he had ever seen.

Dr. Guentzer asked if the radiograph showed the position of the foreign body.

Dr. Yankauer replied that the radiograph had been taken in Texas and the surgeon there stated that it showed nothing.

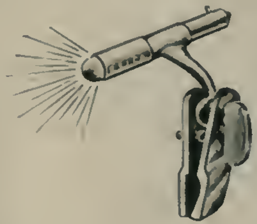
Modification of the Sluder Tonsillotome. Dr. H. Arrowsmith.

Sluder's technic has been of the greatest value in simplifying the operation of tonsillectomy. His instrument is, however, in the amount of traumatism produced, midway between the clean cut of the original Mackenzie tonsillotome and the contusing and slowly healing snare enucleation.

Several years ago, at my suggestion, V. Mueller & Co., of Chicago, changed Sluder's original instrument by slotting the ring opposed to the blade,—as in the Mackenzie tonsillotome,—by making the blade sharper and by replacing the rather flexible retaining plate on top of the blade member by a rigid T-shaped guide. This instrument has been in daily use in my clinic for several years, to the complete satisfaction of my assistants, internes and many visitors. It is easier to manipulate than the real Sluder, enucleation is quicker, less manual force is required and the traumatism is very slight. The instrument is procurable in two sizes, —$\frac{5}{8}$ and $\frac{13}{16}$ of an inch, inside ring diameter.

Illuminator for Killian's Suspension Laryngoscope. Dr. Arrowsmith.

This apparatus consists of a small but powerful lamp which is attached to the lower tooth-plate of the Killian "Spatelhaken" by means of a specially designed clamp, which in connection with a ball and socket joint allows of free movement in every direction and consequent perfect illumination of all parts of the pharynx and larynx.



A much better lighting is obtained than by any form of headlight and the operator is entirely freed from the awkwardness of trying to focus his illumination and manipulate his instruments at the same time.

This instrument has been made, at my suggestion, by the Electro Surgical Instrument Company, of Rochester, N. Y.

DISCUSSION.

Dr. Freudenthal said that he had tried the instrument himself and had found it worked very well.

This instrument is a little lamp. The light given by the head lamp alone is not always sufficient, and another is frequently required to help along. The German lamps recommended by Killian do not give sufficient light. Dr. Arrowsmith had this one made in Rochester. It is much stronger than the German lamps and gives a much better light. It is not in the way at all, works very well, and is simple.

Punch for the Naso-antral Wall. DR. SIDNEY YANKAUER.

Dr. Yankauer said that in operating upon the antrum through the nose he had been using a series of instruments or punches most of which were doubtless known to all present. One, made by Pfau, had been presented about a year ago; it makes a hole in the outer nasal wall and then enlarges the hole. By cutting through, one can cut either backward or forward, but it takes a very small bite. Then the series has an offset punch which cuts forward, and one can easily cut off a considerable piece in the anterior direction. Another instrument by Pfau cuts posteriorly so that the opening can be enlarged posteriorly. All of these instruments are in the market. The hole can be made with any instrument desired, and then enlarged backward or forward. The difficulty, however, has been to level the wall to the floor. No instrument that has been devised for the purpose has been found altogether satisfactory. The only way it could be done was with the chisel, which was extremely disagreeable to the patient. Accordingly he devised a punch which fits into a universal handle and which cuts downward. With this one can work quite rapidly and get well down to the floor. It is made right and left.

DISCUSSION.

DR. MYLES said that he had devised many punches for the naso-antral wall. Of course, approximately perfect instruments can be made for this purpose but he had never yet seen one that was thoroughly and generally effective. We have very efficient instruments for removing the upper two-thirds of this wall. Dr. Myles said that he hoped Dr. Yankauer had found something that was really good for removing the inferior section of the naso-antral wall.

DR. ABRAHAM said that he had no criticisms to make of the instruments presented by Dr. Yankauer, but that he would criticise forceps in general. Everyone has his own way of operating, but the simpler the instrument the better for all concerned. All the forceps that have been devised for this work are extremely complicated and very large. His own experience has convinced him that the simpler the operation and the instruments the better, and he tries to save the patient as much of the inferior turbinate as possible. Lately he has operated upon several cases and it is difficult to see where the inferior turbinate had been operated upon. The technic that he employs is simply to remove the lower border of the turbinate and open the antrum with the triangular reamer, burr and chisel. If forceps are employed it is necessary to remove about one-half of the anterior end of the inferior turbinate. The mechanism of all forceps are very complicated and expensive and in some instances require right and left and are very prone to get out of order. It also requires considerable time and patience to keep them clean and working properly. Therefore I think that any instrument that simplifies an operation and at the same time minimizes the amount of normal tissue to be removed is a preferable one.

DR. YANKAUER said that the difficulty about the outer nasal wall is that the floor of the antrum and the floor of the nose are never on the same level. In some persons one is lower, and in others, the other. With this punch he has been able to get a level floor and it has worked very well.

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

(Regular Meeting, April 21, 1914.)

DR. E. B. GLEASON, Presiding.

SYMPOSIUM ON GENERAL ANESTHESIA FOR OPERATIONS OF THE UPPER RESPIRATORY TRACT.

Oil-ether Colonic Anesthesia. DR. JAMES F. GWATHMEY, New York, (by invitation).

Indications: This anesthesia is indicated in all operations on the upper respiratory tract, head and trunk; in cases of Graves' disease and similar conditions where the element of fear is a dominant factor; in fat patients; in children; in patients who have suffered nausea and vomiting from previous administrations of ether. It can be given in bronchitis and asthma, and has been given to a patient with hemorrhages from lungs with no ill effects.

Contra-indications: Whenever ether is contra-indicated it should be used except when the patient has been ill from previous administration; here it can be given with impunity. Pathological conditions of the lower bowel; colitis, hemorrhoids, fistula, etc.

Preparation of patient: The night preceding the operation, the bowels are cleared by administering castor oil; avoid purging. The following morning, irrigation of colon with warm water until return is clear; patient permitted to rest two or three hours. One hour before operation, mixture of two to four drams of ether, in which is dissolved five to ten grains of chlorotone and two to four drams of olive oil, is injected into rectum, or suppository of five to ten grain of chlorotone is inserted. Half-hour before operation, morphin ⅙ to ¼ grain with tropin 1-200 to 1-100 grain.

Mixture for adults, olive oil, ounces 2; ether, ounces 6. Mixture for weak, anemic patients, olive oil 35-45 per cent; ether 55-65 per cent. For children a mixture containing 50 per cent ether is sufficiently strong.

Apparatus: Rectal tube, one-fourth inch in diameter, twenty-eight inches long; clamp for tube; three inch glass funnel; Lockwood tube, thirty inches long and ⅜ inch in diameter; all previously sterilized.

Administration: Fifteen minutes before operation patient in modified sinus position; catheter well lubricated and inserted four inches within rectum, mixture slowly poured into funnel, at least five minutes being consumed. Introduce one ounce for every twenty pounds of body weight except for those obese; eight ounces should not be exceeded. From ten to thirty minutes is necessary before patient can be moved. Unconsciousness usually follows five minutes after completion of injection; narcosis complete five to ten minutes later, when delayed few whiffs of chloroform allowed. After patient receives mixture anesthetist must maintain clear air passage. Patient never left alone at any time after receiving injection. Then directions important because internes in our hospitals know less regarding administration of anesthesia than any single subject, simplicity may lead to belief that no particular care necessary.

Danger signals: Loss of lid reflex, stertor or embarrassed respiration; approaching cyanosis. If breathing is regular, with reflexes active, patients will relax in surgical narcosis. If any of the above symptoms appear, portion or whole of mixture may be withdrawn, and if symptoms persist irrigate with cold, soapy water; if necessary stretch sphincter and resort to all recognized methods for restoring consciousness.

Post-operative: Immediate irrigation of colon with cold water soap suds; then withdraw one of the tubes from rectum and introduce two to four ounces of olive oil and one pint to quart cold water; withdraw tube from rectum. Patient recovers consciousness from fifteen to thirty minutes following procedure. Olive oil-ether mixture has now been successfully administered upwards of 300 times.

Intra-tracheal Insufflation Anesthesia. Dr. George P. Mueller (by invitation).

Intra-tracheal insufflation anesthesia began with publication of Meltzer's paper in 1909. Later Elsberg devised an apparatus for use in human beings. Shortly after the introduction of the method it was found especially applicable to surgery of the head, mouth and throat; it enables the operator to work unhampered by the presence of an anesthetist and in cases of operation on mouth, the constant back-stream of air prevents blood or mucus from falling into the trachea.

It is not necessary to dwell on the physiologic principle involved; a steady stream of air delivered at the bifurcation of the trachea suffices, when respiration continues to aerate lungs; if respiration is stopped by elevation of pressure, the stream of air is interrupted every twenty seconds to permit diffusion currents to circulate through lungs. With air ether is mixed to anesthetize the patient.

The principle of intra-tracheal insufflation anesthesia is different both from positive and negative pressure. The apparatus exhibited has been used in University Hospital for about a year with eminently satisfactory results. At first a copy of Dr. Elsberg's model was used; later it was altered to suit Dr. Mueller's ideas; finally he had present apparatus made. The doctor's experience extends over two years; about 170 patients have been anesthetized with the one or the other models. The apparatus was primarily constructed in the hope that a moderate-priced, reliable instrument could be produced which would enable the surgeon to use this method of anethesia in thoracic operations as well as for anesthesia in operations on head, mouth and throat. The air-stream is furnished by a blower and electric motor. Air is then filtered of oil or dust and delivered into a glass air chamber. In this is a cone or finger, heated by electric current, on the top of which ether is dropped by means of a needle valve and ether reservoir. Amount of ether can be regulated at will and vaporization aided by heat. Heater can be made to serve two purposes, one of vaporizing ether and the other of warming air if it is believed that warm ether vapor is essential. After leaving the mixing chamber the vapor is again filtered to remove droplets of ether and passes through tubes to trachea. There is a manometer attached to register pressure and a mercury safety valve which can be set at any pressure and which will blow off if this pressure is exceeded.

He has followed the same technic in introducing the catheter as advised by Peck, Elsberg and other writers on subject. Anesthesia produced is so satisfactory, safe, and easily controlled that Dr. Mueller would anesthetize many more patients by this method than he does were it not for the dislike of introducing the tube through vocal cords into trachea. A number of our patients have complained of sore throat, but this is mostly due to faulty technic in inserting tube; those with the most experience in introduction have least trouble with pharyngitis. He has never seen a case of bronchitis or pneumonia that could be attributed to the tracheal tube. But one case of pneumonia and two or three of bronchitis; this is less than the average seen in ordinary anesthesia. The method certainly lessens the shock and makes for an easier post-operative recovery from ether. He has had no experience with the naso-tracheal method advocated by Robinson.

This method is only applicable to cases where it is desired to use intratracheal insufflation anesthesia and where the presence of the tube in the mouth is objectionable to the operator. The method consists in introduction of rubber tube into trachea; then by means of another rubber tube or Belocq canula the first one is drawn backward into the pharynx, thence through the nose. He has used pharyngeal insufflation a great deal, especially in those cases in which it was desired to get the anesthetist out of the road of the operator, but where it did not seem necessary to introduce the tracheal tube. In practice of this method one must always introduce tubes accurately, i. e., they should be introduced exactly the distance as measured from ala of nose to external auditory meatus. This will make them protrude sufficiently into the naso-pharynx but will not allow them to be gripped by the esophagus. It is also important not to attempt insufflation unless swallowing-reflex has been abolished by preliminary anesthesia in ordinary manner.

Finally, while Dr. Mueller is very enthusiastic about intra-tracheal insufflation anesthesia owing to his own experience with the method he does not wish to appear as its advocate to the exclusion of other methods of anesthesia. It is invaluable in surgery of the thorax, indispensable in the surgery of the mouth, especially for cancer of the tongue, lip and jaws; it is very useful in operations upon the cranium, head, neck and spine. In the latter, the recumbent position of patient interferes with respiration but such interference is of no moment with insufflation tube in place.

Chloroform Anesthesia. DR. CHARLES P. GRAYSON (by invitation).

Dr. Grayson felt that anything he might say, favorable to chloroform as a general anesthetic would have little more than an abstract or academic interest. Probably very few of those present used it and he would regret if anything he might say would induce them to experiment with it. Neither should his remarks in favor of it be interpreted as an attempt to persuade others to give it a trial. Two years ago in Philadelphia at the Annual Meeting of the American Laryngological Association Dr.

Grayson gave his experience with chloroform during the preceding eight years; under his personal supervision it was administered to some 3,800 patients. Two years of private and hospital work has brought the number up to 5,000. In discussion of the paper referred to, the doctor was subjected to the severest criticism and be said that many well-meant but terrifying warnings were hurled at his head. He was told of deaths that had occurred in the experience of certain fellows, which, of course, had been wholly attributed to chloroform.

In one way Dr. Grayson is disappointed in chloroform; before he began to employ it he was led to believe by all he had read and heard of it, he was going to be in a state of constant fear and excitement because of its treachery. If all those things were true he would probably have found them out in the ten years he has been using it but so far from being true he would say without hesitation, within the limitations of his own experience, they have proved absolutely without foundation. He has administered it to the infant of a few weeks old, to adults in their seventies and to men, women and children between the extremes of age, in a score or more cases of valvular insufficiency, and to at least a dozen cases exhibiting supposed clinical evidence of that dubious condition known as the "status lymphaticus" and he is still waiting for that loudly and confidently predicted case of sudden cardiac paralysis.

Are we inclined to accredit this to luck? Dr. Grayson has never for one minute permitted luck to play any part in his dealings with chloroform and is just as, if not more careful, in its administration than he was ten years ago, and from the first drop to the last the patient is under his constant observation. Chloroform will not permit the same careless liberties to be taken with it as one may take with ether, but the same thing is true of cocain as compared to eucain or stovain, or of morphin to paregoric, or of strychnia as compared to nux vomica, but we do not abandon cocain, strychnin and morphin simply because of the greater care their use demands, do we?

There is nothing about chloroform that is treacherous; it barks and barks loudly and threateningly before it bites and, if finally goaded into biting, the man who is bitten thoroughly deserves his wound. Dr. Grayson prefers chloroform because if properly given and taken it is a distinctly pleasant anesthetic, it occasions no irritation of the upper air tract and within two or three minutes the patient passes into a quiet anesthetic slumber from which he quietly and quickly emerges upon completion of operation. No post-operative vomiting, often not even a sensation of nausea. Hemorrhages both during and after operation much less than with either nitrous oxid or ether, and it is not at all unusual for the child to be asking for food before half an hour is past. Nothing would induce Dr. Grayson to administer chloroform if the patient, his family or his medical attendant were suspicious or timid about this anesthetic because his faith and regard for it are so great that he would be afraid in case of accident some of these people would shortsightedly blame chloroform instead of some fault of his in its administration

Ether Anesthesia. Dr. Robert F. Ridpath.

The doctor confined his remarks to the method and instrumentality used at operations and in the clinic at the Medico-Chirurgical Hospital. Apparatus used is the Rupert modification of the Cain-McDermott and consists of nicked hot-water container having cross-bars for insertion of ether bottle. Another or smaller bottle is attached to side of water-container and acts as safety valve for any overflow of pure ether. These two bottles are connected by tubing, the distal ends of each having on a larger bottle or ether reservoir, bulbs as here shown, first to force air, second to keep more even pressure than would be possible otherwise. Distal end of small bottle has delivery tube connecting it on which is the mouth-piece.

A few drops of an alcoholic solution of oil or bitter orange is placed on gauze and the patient allowed to inhale for a few minutes; then ether is gradually dropped, the ether and orange odors blending and forming a pleasant mixture which the patients have frequently said was better than plain ether vapor. Ether is gradually increased until patient enters secondary or excitant stage when it is pushed until third or complete anesthesia is reached. The mouth-gag is now inserted and any secretion in the mouth of the pharynx wiped out. Then insert mouth-piece of delivery tube into side of patient's mouth, allowing gauze which still has ether added to it to remain over patient's mouth, and start ether vapor apparatus. The point he wishes to make here is this, that it is advantageous to change from one form of delivery to other gradually, viz: by still allowing gauze to remain over nose and mouth, adding ether to gauze, but in lessened quantity than before, until the patient although anesthetized overcomes the laryngeal spasmodic contraction which invariably takes place at the beginning of giving pure ether vapor.

It will be found that a greatly lessened quantity of ether is necessary to keep the patient in an anesthetized condition by this method than by any other Dr. Ridpath has tried. Anesthetists, if new with this method, must therefore be cautioned against pushing ether too hard. The best results are obtained by having ether bottle of container not over half full, as the bubbling which takes place when air is forced through ether is apt to overflow into small safety bottle.

Ether, whether liquid or vapor, is very susceptible to change or variations of temperature, and although we use small bottle to catch overflow we nevertheless do have on occasions some liquefaction in delivery tube, patient for moment receiving pure ether, instead of vapor. This is easily remedied by simply allowing tube to cleanse itself by dropping it towards floor.

Superheated Ether Vapor with Oxygen. Dr. Frank Hill (by invitation).

DISCUSSION.

Dr. Fielding O. Lewis: Dr. Gwathmey's paper was of great interest to me. On account of fear, often a serious factor in general anesthesia, I believe oil-ether administration to patient in bed would be a distinct advantage. My experience has been mainly confined to the use of straight ether by the drop method. It is interesting to hear Dr. Grayson uphold the use of chloroform, and his experience of 500 administrations without accident is indeed impressive. Chloroform is seldom used at Jefferson Hospital; it is six times more dangerous than ether. I have recently witnessed a labyrinth operation under chloroform which was satisfactory from every view-point; recovery from anesthetic was very prompt.

Dr. Benjamin D. Parrish: The papers of this symposium must have impressed upon the minds of all the growing necessity of hospitals having upon their staffs skilled and efficient anesthetists. A resident physician with the very inadequate preliminary training in anesthesia has no license to undertake the handling of intricate apparatus, nor should the choice of anesthetic to be used be left to the novice. The efficiency of the operator is reduced 50 per cent if he has not perfect confidence in his anesthetist. Statistics as to the relative safety of ether, chloroform and other agents are unquestionably open to grave fallacies and must be accepted with caution. So-called deaths under anesthetics are often deaths partly or wholly attributable to other causes than the influence of the anesthetic itself, and, conversely, fatalities which should be properly ascribed to anesthesia are often either never reported or regarded as due to surgical shock, etc.

The personal element in any given series of cases or methods is often not taken into account. Desperate cases are often regarded as unsuitable for chloroform; ether is chosen for them with the result that ether death is thereby unfairly increased.

Statistics undoubtedly have their value, whilst they may be regarded as roughly indicating the relative risks of ether, chloroform, nitrous oxid, etc., they cannot be accepted as representing the true relative death rates. However, with an assortment of anesthetics, patients and operation, ether has proved about six times as safe as chloroform.

The preliminary use of morphin and atropin in adults and atropin alone in children has to a great measure in my cases removed one great drawback to ether. The ether-vaporizer has become of almost universal use among laryngologists, yet after several years' trial Dr. Parrish has discarded it in the cases of young children, after having one or two alarming cases of acidosis with persistent vomiting. Here again we encounter the drawback to most apparatus, the inability to accurately gauge the amount of anesthetic used, and the tendency of the inexperienced anesthetist to push the administration to the limit.

In my hands the gas-oxygen ether sequence has given the most satisfaction, the Gatch apparatus being used. Nitrous oxid and oxygen alone does not keep the patient under long enough after the removal of the mask to operate on the tonsils unless possibly the Sluder technic be used and merely a tonsillectomy be performed. This combination answers well for removal of adenoids because of its ranking as least dangerous of all anesthetics. On several occasions I have performed the simple mastoid operation on adults with nitrous oxid and oxygen alone, the only difficulty experienced was oozing of blood darkening the field of operation, and in one case of perisinus abscess rendering the meninges hard to recognize from granulations.

The demonstration of colonic anesthesia which Dr. Gwathmey so ably gave was first one I had witnessed. All who were present must have been struck with the facility with which the oil-ether mixture was administered, the rapidity with which anesthesia was produced without any marked stage of excitement and complete relaxation of patient. Rectal etherization was first suggested by Roux in 1847, Perigoof using it the same year; Dr. Weir (*N. Y. Medical Record*, April 28, 1884,) reported one death from rectal etherization. Dr. W. T. Bull, May, 1884, published seventeen cases in which melena occurred in several. Dr. Gwathmey has practically eliminated the danger of intestinal hemorrhage by the use of oil as a menstrum.

It is unfair to judge from one demonstration just what is to be expected of any method. There was no means of gauging the pharyngeal or laryngeal reflex because operation was one for a hernia. The inability to quickly restore reflexes is a great drawback in bloody operations about the upper respiratory tract. The period of prolonged analgia and after-stupor is not to be desired in operative work on the respiratory tract. The apparent ease of administrating this method may lead to some grave results if tried by the casual onlooker. The fact that body weight, age and pathological condition of the intestinal tract and kidneys are of vital importance, should not be lost sight of.

Dr. William L. Rodman said he was particularly indebted to Dr. Gwathmey for demonstration of his method of colonic anesthesia at the Medico-Chirurgical Hospital. It was the first time this method had been employed in Dr. Rodman's service and it worked admirably. The patient was a fat man; relaxation complete; disagreeble symptoms entirely wanting. Dr. Rodman has had no experience with the intra-tracheal method of anesthesia as demonstrated by Dr. Mueller. It is perhaps the very best method in certain cases and it has come to stay. The doctor was charmed with Dr. Grayson's courage in the use of chloroform. Superiority of chloroform to ether in every possible way was demonstrated by Hunter McQuire, the elder Gross and other distinguished surgeons of that time. Personally, Dr. Rodman has had a large experience with chloroform and during the first fifteen years of his practice used it many more times than ether, with never a death. They get off the table all right; no bronchitis or pneumonia; no vomiting.

Great injustice has been done to chloroform. The indications for its administration are definite—children, obstetrics, brain surgery, to avoid hemorrhage. All have not the courage of Dr. Grayson and often defer to public opinion. Dr. Rodman has taken chlorform and it has been administered to a number of his family. In the hands of an experienced person chloroform is as safe, if not safer, than ether. Dr. Rodman is familiar with the method described by Dr. Ridpath; he has often seen it used in Dr. Skillern's clinic. Dr. Rodman advocated the preliminary use of essence of orange.

Dr. E. Matlack: In three operations, namely, mastoidectomy, cerebellar abscess and Caldwell-Luc, the oil-ether method was used with entire satisfaction.

(To be continued.)

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to THE LARYNGOSCOPE.)

THE ORBITAL APPROACH TO THE CAVERNOUS SINUS.*

DR. HARRIS PEYTON MOSHER, Boston.

For a number of years, three at least, I have been on the lookout for a case of thrombosis of the cavernous sinus, feeling that the approach to the sinus through the orbit was feasible. Nine months ago, during my last service at the Massachusetts Charitable Eye and Ear Infirmary and under Dr. Crockett as Chief of Staff, a case presented itself. The patient was too sick to make a definite diagnosis, but it seemed probable that there was thrombosis of the left lateral sinus with extension to the cavernous. At operation Dr. Emerson found the lateral sinus thrombosed and dealt with this condition by the usual operative measures, first tying the internal jugular vein. Two days later, no improvement following and the protrusion of the eye and the edema of the lids increasing, the case was kindly passed up to me.

The plan of the operation which I had in mind was to gain access to the cavernous sinus through the inner half of the orbital plate of the great wing of the sphenoid. The patient gave permission for the removal of the eye. The evening before the operation was spent in preparing for it by work upon the cadaver. At the operation the outer and posterior part of the orbit was exposed by the procedure of Kroenlein. The globe of the eye was retracted inward. A short trial of this method proved that it was not successful in giving sufficient room, and so the eye and the contents of the orbit were removed. Then an opening was chiselled through the orbital plate of the great wing of the sphenoid bone, the brain retracted upward and the cavernous sinus supposedly located and incised. The man died in a few days without any further diagnostic signs and without extension of the process or improvement.

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*Read at the annual meeting of the American Otological Society, Atlantic City, May 27, 1914.

Then came the autopsy which the hospital authorities and the enthusiasm of the house officer made possible. This was the first case in the hospital in which operation upon the cavernous sinus had been attempted. The main point to determine was whether or not the sinus had been opened. In the little group about the autopsy table I somehow felt very much alone. As the saw cut through the left side of the skull cap pus dribbled down the blade, and when the brain was exposed the left hemisphere was flooded with it. Instantly the question was in the mind of everyone, "Did the operation result in a brain abscess?"

On removing the brain, however, the abscess was found in the tempero-sphenoidal lobe, in the typical place, and was due to the extension from the lateral sinus. This abscess had been missed in life, and so, the completed autopsy showed, had the cavernous sinus. Instead of entering the cranial cavity as I had tried to do through the orbital plate of the great wing of the sphenoid, I missed my bearings and had gone too high and had opened the roof of the orbit in front of the lesser wing of the sphenoid and just above the cavernous sinus. I grazed the sinus, but even my loyal house officer could not demonstrate that it had been opened. The dura had been exposed and incised on the under surface of the brain wall back in the anterior fossa. Neither dura nor brain at this point was infected. On cutting into the cavernous sinus it was found to be filled with pus. Such in brief was the result of this operation which I had coveted, an operation which was not undertaken lightly nor without preparation.

Humbled by the outcome of my efforts, I went back to the dissecting room to study the steps of the operation farther. My conclusions are embodied in this paper. I have tried the procedure some ten times. It still appeals to me and my purpose is to make it appeal to you.

ANATOMY.

The cavernous sinuses placed one on each side of the body of the sphenoid bone, and extending from the inner end of the sphenoidal fissure to the apex of the petrous portion of the temporal bone are of considerable size and of very irregular form. Their cavity is transversed by numerous interlacing filaments which give rise to a structure resembling that of cavernous tissue, and from this circumstance they derive their name. Enclosed in the outer wall of each are the third, fourth and the ophthalmic and superior maxillary divisions of the fifth nerve, as they pass forward to the sphenoidal fissure and the foramen rotundum, and in the cavity of the sinus covered only by its thin lining membrane are the internal

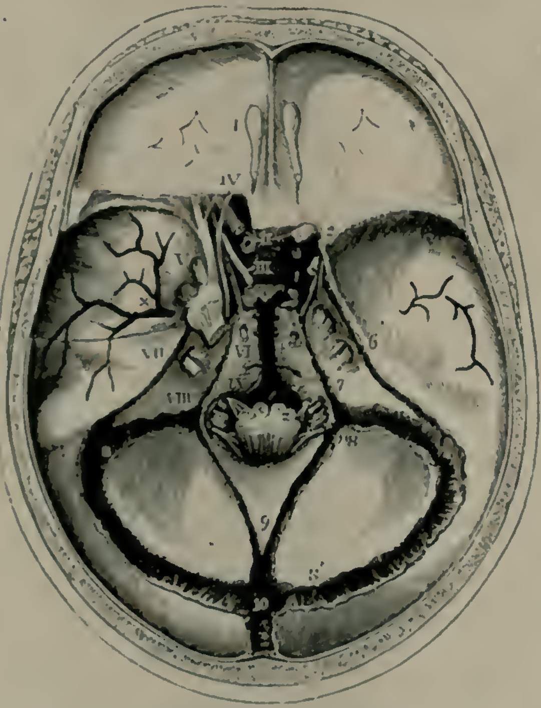

Figure 1. Internal view of the base of the skull, showing the sinuses of the dura mater (Allen Thomson). ½. The tentorium has been removed, and also a small portion of the roof of the orbit posteriorly on the left side, so as to bring into view the sinuses, which are laid open, the arteries at the base of the skull and the trunks of the cranial nerves.

I, olfactory bulb; II, optic nerves; III, third nerve; IV, trochlear nerve; V, placed opposite to the middle of the three divisions of the fifth nerve; VI, sixth nerve; VII, facial and auditory nerves; VIII, placed opposite to the glosso-pharyngeal, pneumo-gastric and spinal accessory nerves; IX, hypoglossal nerve; 1, right internal carotid artery as it makes its turn within the cavernous sinus in the groove of the sphenoid bone; 2, its ophthalmic branch; 3, right and left posterior cerebral arteries, from the former of which the posterior communicating artery is seen passing forwards to the internal carotid; 4, basilar artery; 5, vertebral arteries giving off the anterior spinal; ×, middle meningeal artery spreading upwards from the foramen spinosum; 6, superior petrosal sinus; 7, inferior petrosal sinus; 8, termination of the lateral sinus at the jugular foramen; 8', commencement of the lateral sinus; 9, occipital sinus, in this case of large size; 10, torcular Herophili, and below that number in the figure, the superior longitudinal sinus.

carotid artery, the sixth nerve, and a plexus of the sympathetic. Each sinus receives the ophthalmic veins anteriorly and communicates internally by means of the intercavernous sinuses with the corresponding vessel of the other side, while posteriorly it discharges its blood into the petrosal sinuses. It is also joined by some inferior cerebral veins, and by a small vessel named the spheno-parietal sinus (Breschet) which after receiving a branch from the dura mater and communicating with the middle meningeal veins runs inward on the under-surface of the small wing of the sphenoid bone.

The circular sinus is the name given to a venous ring surrounding the pituitary body of the sella tursica and formed by two transverse vessels (anterior and posterior inter-cavernous sinuses) which connect the right and left cavernous sinuses. Either of the transverse branches may, however, be wanting, but the anterior which is usually larger is the more constant. On the other hand there is often an additional vessel passing across below the pituitary body.

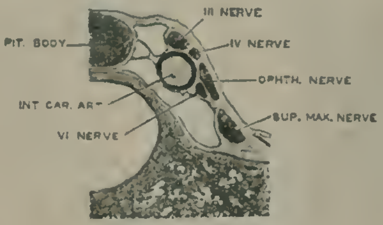

Figure 2. Transverse section of the cavernous sinus. (Langer.)

The superior petrosal sinus is a narrow canal running in the groove along the upper margin of the petrous portion of the temporal bone. Commencing at the back part of the cavernous sinus, it is directed outwards and backwards in the attached margin of the tentorium cerebelli, and ends in the lateral sinus as this turns downward in the groove on the mastoid portion of the temporal bone. It is joined by some inferior cerebral and superior cerebellar veins, as well as by small branches from the typanum which issue by the petro-squamous fissure.

The inferior petrosal sinus, which is much shorter and wider than the superior, passes from the cavernous sinus downwards and outwards in the groove between the lower margin of the petrous bone and the basillar process of the occipital bone. It passes through the anterior compartment of the jugular foramen and opens immediately into the upper end of the internal jugular vein.

The inferior petrosal sinus receives some inferior cerebellar veins and the auditory veins from the internal ear.

Variations of the cavernous sinus: The cavernous sinus is represented in a child by a venous plexus in the dura mater, which by enlargement and fusion of its channels is converted into the characteristic sinus of the adult. In old age the trabeculae diminish and the cavity becomes simpler.*

The sphenoidal fissure: The sphenoidal fissure is bounded above by the lesser wing of the sphenoid, and below by the free edge of the orbital plate of the great wing of the sphenoid bone. In most cases it is a wedge-shaped fissure larger at the inner end or base of the wedge. It is fully two centimeters long. Through it run the third, the fourth, the ophthalmic or first division of the fifth, and the ophthalmic veins. The lower margin of the fissure presents near the middle a small tubercle from which one head of the external rectus muscle of the eye takes its origin.

After the contents of the orbit have been removed and the periosteum cleaned away from the sphenoidal fissure a pair of scissors curved on the flat can be made to enter the fissure at its inner end, and by hugging the lower rim of the fissure it is possible to separate the dura from the outer wall of the cavernous sinus for about a centimeter. It would almost seem as if in many cases the cavernous sinus could be opened at this point without the removal of bone. For surgical purposes, however, it is necessary to enlarge the fissure. This is the essential part of the operation advocated in this paper.

The outer wall of the orbit: The outer wall of the orbit is very oblique: it is formed by the orbital surface of the great wing of the sphenoid and the malar. Between it and the roof near the apex is the sphenoidal fissure. Between the outer wall and the floor, near the apex, is another fissure, the spheno-maxillary which allows the superior maxillary nerve to enter the infra-orbital groove from the spheno-maxillary fossa. At the anterior margin of the groove the sphenoidal wing occasionally articulates with the maxilla, but frequently is excluded by the malar.

The outer wall of the orbit, to recapitulate, is made from without inward, and for the first third, by the malar bone and for the two remaining thirds by the orbital plate of the great wing of the sphenoid. Only the inner half of the orbital plate of the sphenoidal bone, however, has to do with the cranial cavity—the anterior half, the part which makes the middle third of the outer wall of the orbit, making a part of the anterior wall of the zygomatic fossa. We are concerned, therefore, only with the inner half of the orbital face of the sphenoidal bone, the part which bounds the sphenoidal fissure below and makes the inner part of the anterior wall of the middle fossa of the skull.

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*Quain, Vol. 2, Part 2, pp. 723-[illegible]

OPERATION.

The globe of the eye is removed and then the orbit cleaned out. Then the ophthalmic artery is tied. The periosteum is cleaned from the posterior half of the floor of the orbit and the groove recognized in which the superior maxillary nerve runs. The next step is to separate the periosteum from the orbital surface of the great wing of the sphenoid and to recognize the outer end of the sphenoidal fissure. With the chisel placed vertically a cut is made through the

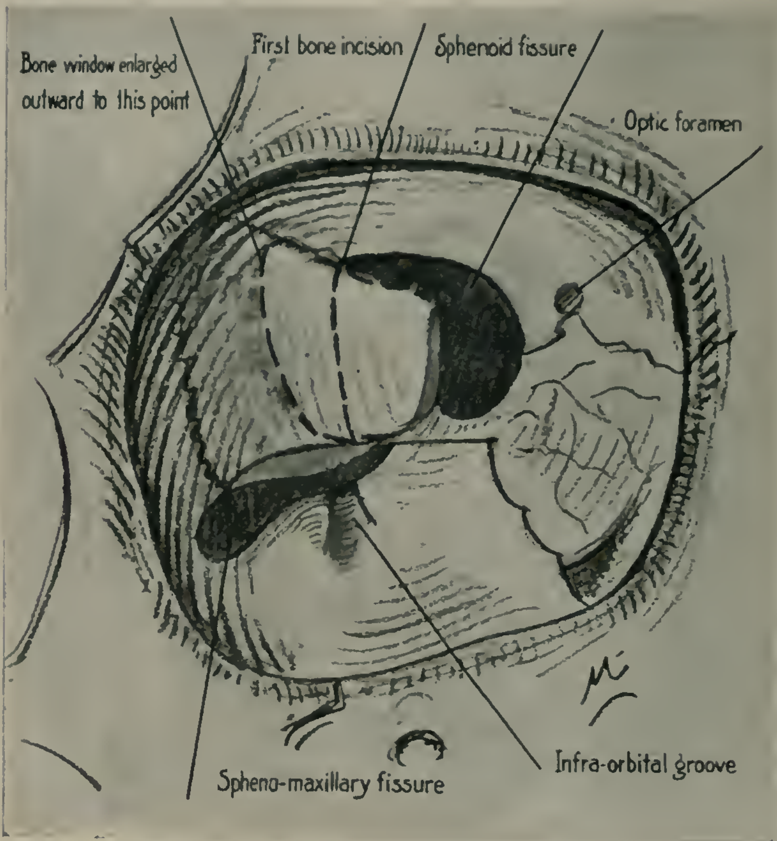

Figure 3. Drawing by author to show the bone incisions for reaching the cavernous sinus through the orbit.

orbital plate of the great wing of the sphenoid from the notch for the superior maxillary nerve below to the outer end of the sphenoidal fissure above. The bone is thin along this line and is readily removed. It is important to make sure that the whole of the bone making the lower border of the fissure is taken away. The bone opening is enlarged outward one-half centimeter, using either rongeur or chisel. The lower edge of the bone window should be brought flush with the floor of the orbit. Unless this is done it is not easy to get at the bottom of the middle fossa from which the dura is to be elevated. The enlarging of the bone window outward is best accomplished. be in this point one-half centimeter in thickness. If the window is carried further outward the zygomatic fossa is opened. The

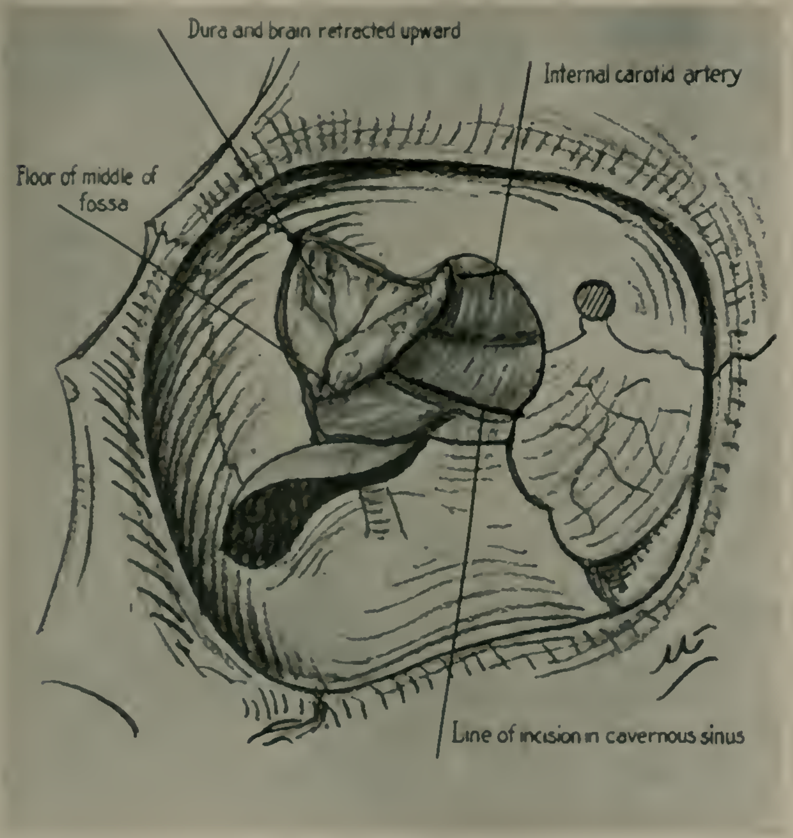
Dura and brain retracted upward
Internal carotid artery
Floor of middle of fossa
Line of incision in cavernous sinus

Figure 4. Drawing by author to show the cavernous sinus exposed and incised.

bone is so thick where the orbital plate makes the apex of the zygomatic fossa that the approach to the middle fossa and the cavernous sinus—by removing first, as I did on the living, the malar bone by the method of Kroenlein and then attacking the orbital plate from without inward—starts the operation on thick bone and makes the exposure of the dura slow. Consequently the operator becomes timid.

Furthermore, there are no landmarks by which to make the bone incision; so the operator may easily, as I did, go too high, and enter the anterior instead of the middle fossa. By making the bone incision as has just been described, that is from the groove of the superior maxillary nerve upward to the outer end of the sphenoidal fissure, the orbital plate of the great wing of the sphenoid splinters off in much the same fashion as the bridge comes away in a radical mastoid operation with the last stroke of the chisel. Having quickly uncovered the dura the operator goes on confidently.

The bone-window, made and enlarged outward and brought flush with the floor of the orbit, the dura is then elevated from the floor of the middle fossa, working from the outer boundary of the bone window inward. On the cadaver the dura can be separated from the outer wall of the cavernous sinus for a distance backward of about one centimeter. Then the separation becomes hard. If the elevation is persisted in at the level of the bottom of the bone-window a pin-head opening is torn in the outer wall of the sinus at this point. I do not know whether this is due to dividing a vein running in the outer wall of the sinus or whether a strand of one of the nerves in the outer wall of the sinus is torn away. Above and beyond this point of adhesion between the outer wall of the cavernous sinus and the dura the two can be separated for about a centimeter further. Then the emergence of the ophthalmic division of the fifth nerve from the Gasserian ganglion halts the separation. If the attempt is made to separate the inner wall of the cavernous sinus from the outer wall of the body of the sphenoidla bone, the knife may have to be used to start the separation, but once it is started it can be carried back easily to the limit of the sinus.

Experimentation makes me feel that the exposure of the outer wall of the sinus, though limited in extent, is the better. Choosing then the exposure of the outer wall of the sinus and having separated the dura from it for a centimeter, a blunt-pointed knife is placed against the outer wall of the sinus on a level with the floor of the orbit and the knife blade carried forward toward the body of the sphenoid until it is stopped by the bone. This incision opens the wall of the cavernous sinus for one centimeter and is well below the internal carotid artery. Through this incision into the cavernous sinus a small curette can be carried back in the sinus to the opening of the superior and inferior petrosal sinuses, that is through the whole body of the sinus. The distance from the rim of the orbit is on the average between 3 and 4¼ in.

Given a cavernous sinus thrombosed or full of pus what would happen in life in my opinion is, that as soon as the separation of the dura from the outer wall of the sinus was begun, the sinus would rupture. The escaping pus would then guide the curette into the cavity of the sinus.

The above operative technic is based upon one failure in the living, to which I owe much, and to which I hope some day one of you will also owe something, and to ten operations upon the cadaver. I believe that it is entirely feasible, that it is something more than a cadaver operation with which the demonstrator caps his operative course and stirs the imagination of the post-graduate student. Its drawback is the necessary removal of the eye. In the serious cases, because there are cases which get well without operation, when a reasonably sure diagnosis can be made the eye is already useless. The patient without operation is doomed. As I look at the question of the sacrifice of the eye both scripture and surgical sense call for it.

The approach to the cavernous sinus through the orbit is the direct and natural way. Enlarging the sphenoidal fissure, which is the essential part of the operative procedure here advocated, is simply opening wider the anatomical gateway through which the sinus emerges from the skull.

828 Beacon Street.

Case of Ozena in a Nursling. PASQUIER. *Jour. de Med. de Paris.* March 7, 1911.

Nursling of 7 months had dyspnea. Crust removed from nose proved to be ozenatous, but the mucosa was not atrophic and the crust not very fetid. The father of the child had ozena. There was no history of lues.

ED.

FREEZING THE INTERIOR TURBINATE.*

DR. HARRY S. GRADLE, Chicago.

Although not a rhinologist, I have been called upon at various times in my clinical and private practice to relieve intumescent inferior turbinates because of the ocular condition existant. When unable to refer the cases to rhinologists I performed the following small operation which I devised and to which I was led by the wonderful results obtained from freezing various angiomata and ruptured blood-vessels around the eyelids with carbon dioxid snow The technic of obtaining the freezing mixture is that elaborated by Dr. J. S. Eisenstaedt, dermatologist, and myself.

The intumescent turbinates that shrink to a fairly small size under the influence of cocain and adrenalin are those suitable for the procedure, which is extremely simple. The nose should be thoroughly anesthetized while the snow is being obtained. We use a large carbon-dioxid tank, identical with those used in soda-fountains and saloons. The gas is allowed to escape through a regulating valve into a chamois bag, where it rapidly condenses to a snow of very low temperature. This loose snow is then packed into a half-inch hole, bored through a four-inch block of hard wood. The mold is packed tightly by a loosely fitting piston, pounded by an ordinary hammer. As soon as the snow is tightly packed into the mold, the block is laid on its side and the snow pencil gently tapped out. With a sharp knife, this cylinder is quartered lengthwise so that there results a segment of a cylinder of carbon dioxid snow with one sharp, long edge.

This segment is held tightly in a grasping forceps and introduced into the nose through any sort of a nasal speculum. The sharp edge is pressed against the turbinate, the same as a cautery wire is applied, and held there for about twenty seconds, then withdrawn. A sharp depression, lined with frost crystals, which disappears in less than twenty seconds will be seen in the frozen area. If an insufficient area was thus treated, the snow may be reapplied. Care must be taken not to touch the edge of the nostrils or the septum. and should the pencil fall from the forceps to the floor of the nose it must be immediately blown out by the patient.

Practically no reaction follows the operation. The patient suffers no more inconvenience than from a simple office treatment, and is not incapacitated from work at all. Occasionally one freezing will be insufficient and a second can be performed at any future period. I have carried out the procedure twenty times and have had to repeat it in two patients only. The results have proved themselves eminently satisfactory. The turbinate thus treated becomes reduced in size without the loss of any mucous membrane and without the formation of any visible scar-tissue, as after actual cautery. The longest observed case is now two years in duration, and there has been no recurrence of the intumescence. I believe the process to be superior to that of cauterization, both in simplicity and in results, and one worthy of a place in the armentarium of the rhinologist.

32 N. State Street.

Submucous Resection of the Lateral Nasal Wall for the Removal of Foreign Bodies from the Maxillary Cavity. W. Zemann, *Ztschr. f. Laryngol.*, Bd. 6, Heft. 6, 1914, p. 821.

Up to the present time foreign bodies of the maxillary cavity had to be removed via the canine fossa, as the intra-nasal way was combined with excessive homorrhage and did not give broad exposure. The writer exposes the lateral nasal wall by elevating the nasal mucous lining, beginning from the apertura pyriformis. By means of a small chisel a small opening is made in the bony wall, whereby care is to be taken not to injure the mucous lining of the antrum. A Freer separator is introduced and the antral lining elevated; thus exposing the lateral bony nasal wall between its sac of mucous lining. The bone is removed by means of a good biting forceps and the double mucous lining incised according to the intended size of the "window."

The removal of foreign bodies from the antrum and simultaneously the treatment of the usually concomitant antrum suppuration may thus be easily achieved. Glogau.

THE SUBMUCOUS OPERATION FOR CORRECTING NASAL DEFORMITIES. SYMPTOMS INDICATING OPERATION. METHODS AND DIFFICULTIES ENCOUNTERED.*

DR. NATHAN P. STAUFFER, Philadelphia.

Deformities of the nose may be caused by displaced or broken nasal bones (Figure 3), or broken nasal processes of the superior maxilla; or several portions of the septum and cartilage may be bent in combination; or the deviation may be due to the cartilage alone.

In these deformities the obstructions in the nares may be high up with the perpendicular plate of the ethmoid touching the middle turbinal. This will prevent air entering the nose or passing to the inferior nares. Or the obstruction may be caused by the vomer leaning against the inferior turbinal (Figure 5). The air enters the nose but on descending to the posterior inferior nares it strikes this combined obstruction-wall formed by the vomer and inferior turbinal and rebounds upon the entering air. These causes force the patient to keep the mouth open constantly in order to get the necessary air-supply. Patients with these deformities frequently complain of recurrent attacks of rhinitis without any history of exposure to infection or to changes of weather. The pressure of a deviated septum upon an already engorged and irritated turbinal will not only produce these rhinitis attacks but also cause annoying and obscure headaches. Other symptoms caused by nasal deformities are peculiar qualities in the tone of the voice as though the patient talked with a closed mouth allowing the tone to linger in the nose, and anosmia caused by the bent septum closing the olfactory fissure. This deprivation of smell is a great hardship.

But the most insidious as well as the most dangerous are referred to the ear. Many of these patients with obstructed nares have an increasing tinnitus with noises so severe as to cause the patient to threaten life. I have found that an early ear symptom due to an obstructed air passage is a lusterless membrana tympani often accompanied by recurring attacks of myringitis which may be followed by acute otitis media or purulent effusions.

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*Read before the Section of Otology and Laryngology at the College of Physicians, March 18, 1914.

Case 1: This case of Mr. G. shows how a submucous operation will correct a disfigurement of the face and a purulent otitis media as well as an illustration of the methods and the difficulties encountered during and after submucous resections. I hope this will help some other men as I could not find any literature to aid me in my earlier difficulties. Mr. J. G., a patient of Dr. B. was referred to me with the following complaints: Badly bent nose disfigurement; inability to breathe through left nostril; mouth-breather at night with crust-formations in throat upon arising, and a chronic purulent otitis media of many years' duration.

Examination of nares disclosed a protrusion of the cartilage into the vestibule of the patient's right nares and a concavity in the middle of septum, while the left nostril was entirely occluded by the cartilage, the vomer and the perpendicular plate of the ethmoid making a convexity which pressed against the inferior and middle turbinals so that not even a probe would pass.

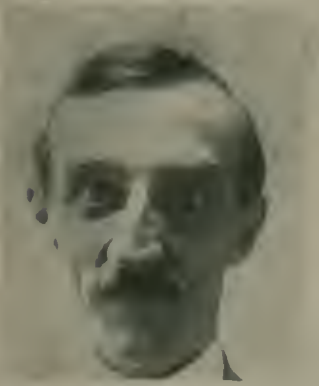

Figure 1. Case 1 before operation (May 21, 1913).

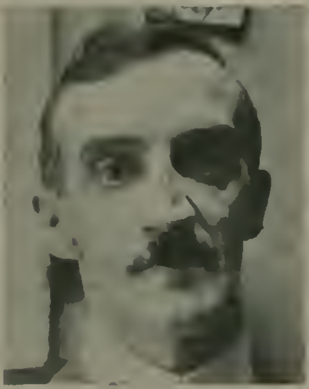

Figure 2. Case 1 after operation (June 21, 1913).

Right ear had a large central perforation in the inferior half of the membrana tympani from which foul pus discharged.

Operation methods: May 2, 1913, at 9 a. m., under strict asepsis, I operated using local anesthesia, saturating the cotton tipped applicators in adrenalin (1-1000), and then after squeezing out the excess fluid dipping applicator into the powdered crystals of cocain. I massaged the septum for twenty seconds and repeated this in three to four minutes. This gives very satisfactory anesthesia and patients never complain except when removing the vomer.

Where the bend of the septum is at a very acute angle and dissection is difficult or impossible, you may get anesthesia beyond by injecting submucously a one-half of one per cent solution of cocain and a few drops of adrenalin (or one per cent solution of novacain). This submucous anesthesia has the added feature of making dissection much easier. By pushing the needle through the cartilage to the opposite side you can anesthetize without withdrawing the syringe.

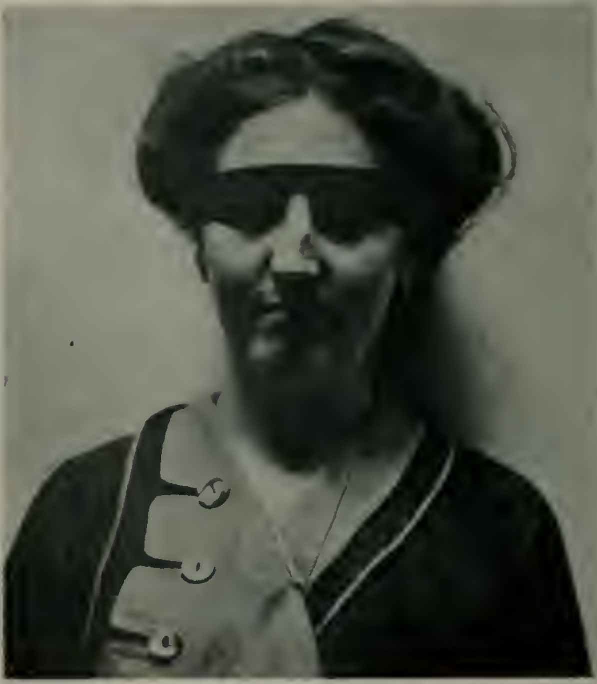

Figure 3. Nasal deformity and deviated septum occluding left nostril. Patient unable to breathe through nose. Before operation. (Courtesy of N. Y. Med. Journal.)

I usually start my incision in the patient's left nostril as I find working right-handed this method is easier and most satisfactory. But in this case I was forced to start on the right side because the cartilage protruded out of the vestibule clear to the alae of right nostril, preventing retraction of the mucous membrane sufficiently to allow an incision on the convex side, at least none which would include the protruding and also the obstructing cartilage.

The incision of the muco-perichondrium far forward often starts an annoying hemorrhage which slows up your operation. Unless you pack this with adrenalin and cocain and wait about one to three minutes you will be delayed by a blood-obscured field. This incision was along the whole end of the protruding cartilage which was then pushed to the left and the dissection was made on the patient's right side first. The cartilage was then pushed far over to patient's right and the dissection made on the patient's left side as far as the cartilage would allow by bending it over. The points of the greatest concavity and convexity have always been the most difficult dissections. I have found the method advised by Glas (Vienna) very good—the long Killian speculum blades by rocking will quickly strip the muco-perichondrium from the cartilage to its point of union with the periosteum. To loosen this the method of cutting along the top of the vomer recommended by Neuman I have found very

Figure 4 Case 2 after operation. Perfect breathing established in nose.

satisfactory (some prefer the sharp dissectors of Freer which practically cut the periosteum loose), although I find the sharper the dissector the greater the danger of perforation; hence I usually use Ballinger's heavy dissectors in the nares in preference to sharp ones.

The concavity in this nose like many others was at a right angle (the convexity touching the left inferior turbinal) and in trying to round the concavity I tore through, but as the convex side was intact there was no need to worry about a perforation. The cartilage was then removed to the tip of the angle of the concavity, and with this out of the way the dissection was more easily proceeded with. The vomer had a large bend low down extending deep into the posterior nares.

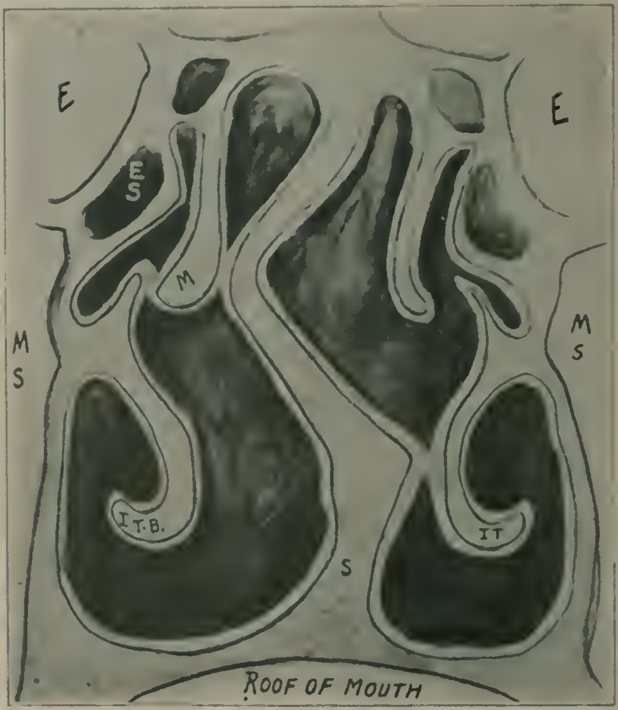

Figure 5. Chart illustrates how a deviated septum will cause headaches by pressure on middle turbinal and act as a constant irritation. (Courtesy of N. Y. Med. Journal.)

Frequently the removal of the vomer is followed by profuse bleeding and you must pack the pouch with adrenalin and wait again for several minutes. I have found the self-retaining speculum of Killian (Lentz modification) to be a great help in holding deep into the muco-perichondrium. This gives a good view deep into the pouch and frees you of the worry of tearing the mucosal sides. The chisel with a few strokes usually loosens the vomer and a Middleton or an Eves forceps will pry it loose. The perpendicular plate is next attacked and with the Jansen-Middleton biting-forceps you can take off exactly the amount which forms the convexity.

The method of rocking the ethmoid and breaking it I consider dangerous and apt to loosen more than you desire. In Figure 2 the vomer and a great portion of the ethmoid was necessarily removed, resecting clear to the post-nares. When the cartilage and the bone had been removed the nose had returned to a straighter position.

Further examination revealed pus in the left nares discharging over the anterior end of the middle turbinal.

Packing: After cleaning with 1-5000 permangate potassium the Bernay-Simpson sponge tents were inserted after anointing them with Beck's bismuth paste. I cannot bring myself to adopt the German method of no packing whatever as I fear some would bleed profusely after the effect of the adrenalin and cocain subsides. The Austrian gauze method is safer and you can sleep easier. The Bernay-Simpson sponge tents are better for the reason that you can co-apt the edges of the incision or any tears much better than when inserting the gauze. In inserting gauze it is apt to roil or pucker, or pull the wound edges apart. Several cases which were slow in healing were caused by the gauze rolling up the mucosa when inserting it, or when removing the gauze it would adhere to the wound edges, then tear and thus start granulations which cause synechia between turbinals and septum. If this does occur you may be compelled to replace the Berney tent in for several days after douching nostrils.

My observations have led me to believe the muco-perichondrium is much swollen the following days, in many cases just a simple reaction hyperemia, in others a marked hematoma. This is relieved by making a counter-puncture in the muco-perichrondrium far back, at time of the operation. Others show a mucosa which is almost purple the following days.

There are two other methods of packing after the submucous resections which I like, that of Dr. George Fetterolf who wraps gauze around the metal splint which permits the patient to continue breathing, and that of Dr. O. A. Lothrop (Boston) which consists of chain-stitch mattress sutures of catgut through and through the muco-perichondrium and no other method of packing. This prevents the pressure headaches and the constant irritation and sneezing which ofttimes annoys the patient. The sutures are started high up posteriorly to the anterior nares and repeated until the floor of the nares is reached. Dr. Howe of Brooklyn reports twenty-five cases of this latter method and says, "Shock and depression was far less. Free nasal respiration through one or both sides began within thirty-six hours in 80 per cent of the cases. Hematoma did not occur in a single instance and no bleeding sufficient to need the operator's attention or medical assistance."

Post-operative treatment: Mr. G. was sent home with instructions to take a hot bath and alcohol rubs, to remain in bed with an ice-bag to the nose and to eat light food. That night at 12:30 a. m. I was called on account of the bleeding. I found some oozing which was stopped when the dressing was pushed in tightly.

Three days following this operation patient's pulse became 100; temperature 101° F.; slight headache, septum was swollen a half-inch in thickness, patient unable to breathe through nose. I incised mucosa high up and low; found blood but no pus. The following day the mucosa of the septum was more swollen. I opened the original incision and introduced forceps higher up, whereupon several ounces of pus gushed forth. I irrigated the septal pouch daily for three weeks with 1-5000 bichlorid solutions before this pus ceased. I believe this infection was caused by the pus from the left ethmoid cells previously noted. The mucosa for a few weeks longer was very much thickened and indurated, both vestibules tightly closed, but hot compresses three times a day with salt solution intra-nasally, finally reduced it in size and on September 19, 1913, he reported with a perfectly straight nose (Figure 4) and able to breathe perfectly day and night. His ear discharge has also ceased as a result of the submucous operation.

Operation for exostosis of nasal bone: In case 2 (Figure 3) there was a deviated septum with marked external deformity. Some of the same difficulties were encountered, one demanding that the septum be removed clear to the post-nares. but no infection occurred. This case proved interesting for another reason. The operation was done under general anesthesia and as the hemorrhage is always annoying I desired to use adrenalin and cocain but could not find any records of their effect on the circulation. I had the resident keep a blood pressure record and found the adrenalin and cocain had little effect as the blood pressure never varied much but remained between 125 and 135 during the operation.

This patient had been operated upon in the Dublin Hospital by the U-shaped incision but the obstruction recurred and the operation was unsuccessful as the patient could not breathe. After the submucous resection had permitted the introducing of other instruments I next attacked the hump on the left side of the nose which was due to an exostosis of the nasal bone. This hump was removed by placing my left first finger externally on the nasal bone and with the knife cutting subcutaneously up through the nostril. Then a small dissector in the nostril lifted up the periosteum and skin and with Ballenger's reverse spoke shave chisel I removed the hump. In doing this, care must be exercised to keep from breaking through the skin or the bridge of cartilage left to support the nose.

Conclusions: This operation is much better handled with the patient conscious, as he can give help by turning the head, and while he has a very bad cocain headache the following day, it is nothing compared to the ether nausea combined with a cocain headache and gauze packed nose.

Dangers: The submucus operation should be done only after the operator has taken a course on the cadaver, as its routine employment by those unqualified will bring our profession into disrepute. I have seen some very large flaps of muco-perichondrium removed from the nose under the impression that they were cartilage. This major operation is only for those who have spent some years in nasal work and have become thoroughly familiar with the anatomy and proper surgical methods. Patients have died from meningitis following it. I have seen a colleague's patient develop meningitis and die within a week after the operation. A United States senator who succumbed is another illustration. It should be performed only under the most rigid antiseptic precautions.

Perforation: A troublesome complication at the time of the operation is a perforation. If the perforations are made at the exact spot and through both mucosa and not closed at the time of the operation the hole tends to become larger, growing usually to about the size of a ten cent piece and then stops. Some patients have perforations and never know it and are never inconvenienced by it. I have several patients who have perforations in noses which *have never been operated upon* at any time in their lives and the patients never knew of the perforations. Their only complaints were a slightly stopped up nose and crust-formations at other times.

The Yankauer curved needles are excellent for closing perforations at the time of the operation. If you overlook the perforation or it develops later from replacing gauze or splints, the method of Marschek (Vienna) is very satisfactory—a flap is dissected immediately under the perforation into the floor of the meatus, leaving a large pedicle pulled up and through the perforation and anchored on the other side. The important part is not to pack tightly as you want the edge of the flap to bleed. The flap can also be taken from the inferior or middle turbinal.

Contra-indications: Many times you are called upon to decide whether a young child should have a submucous resection. Some authorities claim it should not be done before the fourteenth or fifteenth year; but the question arises whether it is not better to run the risk of some failure of bone development rather than subject the child to constant colds, deficient oxygen, formation of mouth-breathing habits, deformed alveolar arches, purulent otitis media or sinus complications. If there is total occlusions of one or both nares, or markedly obstructed breathing which will produce worse symptoms than the chance of the septum properly developing, then no matter how young, the child should be operated upon.

In tuberculosis patients I have refused to operate until the family physician has given permission and the patient's temperature kept normal for a month.

Some surgeons have done a submucous operation with no relief to the patient and have wondered why they failed. In many cases it is due to allowing a hypertrophied turbinal to remain. When we have a large cavity on one side of the nose the turbinals endeavor year after year to fill up the vacuum and an overgrowth of one or both turbinals ensues. Now when you straighten this bent septum and do not at the same time remove a portion of this overgrown turbinal you only change the obstruction from one nares to the other. You will ask, is it necessary in all cases of submucous resection to do a turbinectomy? Some noses will get enough air by the simple submucous resection and removing the offending deviation; others have caused such prolonged irritation that the turbinals are hypertrophied and unless you resect a good-sized portion of the middle, or posterior end of the inferior with the snares or scissors you will not give your patient relief. I find that in packing the turbinectomy cases you get free bleeding if you remove it before the second day. If you use iodoform gauze the chances of infection are less, and no rise in temperature is noticed and no foul odor is observed and you may allow it to remain two days.

In closing I want to emphasize the use of plenty of hot compresses externally, hot irrigations of Dobell's solution intranasally, and absolute rest in bed for forty-eight hours and a replacing of the Berney-Simpson sponge tents for the second twenty-four hours, or Lothrop's mattress sutures. Post-operative swelling or prolonged thickening of septal mucosa is thus avoided. I would call your attention to the relief obtained by this operation if well done (by that I mean the removal of all the bent portion), in the disappearance of headaches, clearer thinking, better sleeping, better sense of smelling, improved hearing, relief of recurrent rhinitis, and improved voice. External deformities of the face can be corrected in some cases by the submucous resection alone as is shown by Figure 2.

218 South Twentieth Street.

Exercises to Strengthen Expiration in Treatment of Asthma. L. Hofbauer. *Deut. med. Wchnschr.*, May 28 1914.

Hofbauer holds that the basis of most cases of bronchial asthma is an emphysema which in turn has caused faulty respiration. Educational means for correcting this have been successfully employed. The apparatus used regulates the duration of the respirations, the periods of expiration being gradually lengthened and those of inspiration shortened. During expiration the patient is asked to hum a note at a constant pitch; thus insuring uniform forcible expiration of definite duration. Respiration must take place solely through the nose.

Ed.

THE OBSERVATION OF NYSTAGMUS THROUGH THE CLOSED EYELIDS.*

DR. EDMUND PRINCE FOWLER, New York City.

The anterior portion of the eye-ball is the segment of a smaller sphere than is the posterior portion, and consequently the cornea projects from the sclerotic, somewhat in the same manner that a watch-glass does from its case. In different people and at different ages the degree of curvature varies, but at all times it is sufficient to enable one to follow movements of the eye-ball in every direction though the eye-lids be closed.

By placing the index and middle fingers upon the closed eye-lid, one on each side of the cornea, nystagmic movements of the eyeball may be detected by touch.

By placing the diaphram of a phonendoscope (or such like instrument) upon the closed eye-lid, to one side of the cornea, nystagmus may be detected by hearing. By the unaided eye nystagmus may be detected, unless the eye-lids be unduly thickened. No doubt these facts are of common observation, but so far as I am aware no use is made of them in otology.

By observing nystagmus through the closed eye-lids, several real advantages are gained:

1. The eye muscles are at rest, and no accommodation or fixation occurs. Thus all patients may be tested under equal conditions in so far as these uncertain and disturbing elements are concerned.
2. There being no effort at fixation, after-rotation nystagmus endures from twice to three times as long as when the eyes are opened following rotations. Thus a longer and hence a more accurate guide is furnished for the rotation tests and nystagmus may be aroused by weaker galvanic and caloric stimuli.
3. During vertigo there is an involuntary tendency to close the eyes and to keep them closed, as this lessens in some measure the dizziness. Thus if the eyes are kept closed during the nystagmus tests, we psychologically and physiologically contribute to the patient's comfort by diminishing his vertigo.
4. By the use of suitable indicators properly attached to the eyelids, the eye movements may be magnified a hundred fold; thus making for ease and accuracy of observation.

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*Read at the twentieth annual meeting of the American Laryngological, Rhinological and Otological Society, Atlantic City, June 19, 1914.

5. Upon properly placed revolving drums, or moving sheets, such indicators may be made to graphically record nystagmic movements of both eyes, during and after rotation of the body. Thus a means is provided wherewith to estimate not only the duration of nystagmus during and after rotation, and the caloric and galvanic tests, but to study the magnitude, frequency, gradations and variations of nystagmus in both eyes under different conditions. Such a study cannot fail to contribute something to our understanding of vertigo and allied phenomena. A study of the modifications of nystagmus in disease is by the means I have outlined made possible, and a nystagmogram may be preserved for future reference.

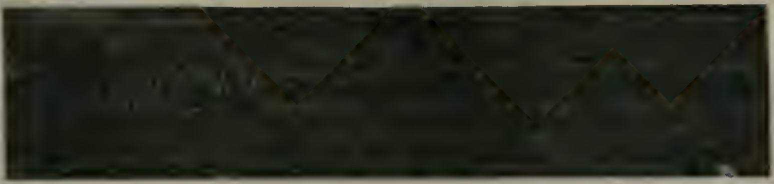

Figure 1. Tracing of nystagmus during rotation, with eye-lids closed. Note its quick inception and subsidence in this case.

Figure 2. Tracing of a wink during the latter part of a nystagmus. Note opposed directions of the waves.

Figure 3. Nystagmograms of both eyes taken simultaneously. Note the coincidence of the waves and that the number of nystagmic movements may be counted.

That the inertia and momentum may be practically nil, I have been using for this purpose paper or straw indicators, one end stuck to each eyelid, usually to the nasal side over the junction of the cornea with the sclera. (Z. O. plaster or auto tire cement are satisfactory adhesives.)

If the indicators are properly placed it will be seen that they respond readily to slight motions of the eyeball (rectilinear and rotatory[*]).

I call attention to one disturbing element in this method of observation; the winking or twitching of the eyelids, and that these motions are always opposed to one another. Thus the movements of two indicators appear twice as extensive as does the movement of but one. This is clearly recorded upon the tracings. After a little practice one is able easily to distinguish these from nystagmus oscillations. Moreover they are unrythmic. For nystagmographic tracings, I use a sphygmograph mounted upon a hockey puck, the latter held between the teeth of the patient, and the blackened paper ribbon fed from the rear towards the front (away from the patient). I submit several nystagmograms made with this improvised apparatus to show its practicability.

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[*] Due to the short rectilinear component always associated with the rotation of the eye-ball. This is more marked when the eyes are closed.

616 Madison Avenue.

What Becomes of the Operated Sinuses? E. J. Moure. *Rev. hebd. de Laryngol.,* April 4, 1914.

Upon opening a number of frontal and maxillary sinuses, previously operated and in which thorough curettement of the mucosa had been practiced, Moure found the cavities entirely filled with a kind of fibrous tissue, the bony walls themselves having grown towards one another. In fact the sinus seemed to have disappeared.

In view of this, it is evident that to operate and cure sinusitis all that is necessary is to make an opening of sufficient size to thoroughly inspect the interior and then to curette the mucosa, whether infected or otherwise,—an essential feature in order to obtain postoperative obliteration. For this reason, the Caldwell-Luc operation for the maxillary sinus and the Ogston-Luc for the frontal will remain the ideal when the suppurating cavities require an external operation.

A mutilating operation, in which an effort is made to at once obliterate these cavities is not necessary. The important point is that the whole mucous membrane should be removed. In fact, after complete curettement, the cavities should be wiped with a 10 per cent solution of chlorid of zinc to complete the destruction of any remaining mucous membrane.

In chronic frontal sinusitis it is important that the ethmoidal cells should be cleared by way of the natural passages and should be the preliminary stage of the external operation.

The post-operative obliteration of the maxillary and frontal sinuses has been experimentally demonstrated by Ssamoylenke in the clinic of Simanowski of St. Petersburg. SCHEPPEGRELL.

THE OPERATIVE TREATMENT OF MENINGITIS.

DR. SAMUEL J. KOPETZKY, New York City.

"Septic conditions are usually surgical opportunities, and demand surgical treatment." Thus Dr. Irving S. Haynes prefaces his argument presented before us in 1912, advocating the trial of "Drainage of the cisterna magna" to cure certain types of purulent meningitides.

The operative treatment of purulent meningitis has undergone scientic inquiry ever since the above statement was made, and it is my present purpose to present the position *now* held, both by Dr. Haynes and the writer, after two years of further study and experience with meningitic infections, so as to complete our records before this society.

In 1912, following the lead of pioneer work from many competent sources (see historical review of Haynes article, Transactions A. L. R. and O., Society, 1912) and adequately to meet the shortcomings and the objections which practical application has demonstrated existed in all previously devised methods of technic to effect a similar object, Haynes perfected a procedure which afforded drainage to the infected central nervous system and at the same time effected decomposition of the brain and relieved the handicapped vital centers in the medulla. It was common knowledge that bacterial invasion of the central nervous system resulted in an infection of the cerebro-spinal fluid with the accumulation in this fluid of purulent exudate. It was demonstrable at autopsy and reported upon by many observers, that the larger proportion of cases presented pus-accumulations along the base of the brain and more specifically involved the posterior cranial fossa. Clinical evidence of compression was a concurrence habitually observed at some time in the course of the disease. The excellent results Soffian obtained by removing the infected cerebro-spinal fluid and by decreasing intra-cranial tension before injecting anti-meningicoccus serum, and, finally, the sporadic cures of other types of meningitides which obtained through the withdrawal by lumbar and ventricular punctures and different ways of decompression—all these were factors which gave support to the opinion that the crux of the situation presented in purulent meningitides lay in the successful evacuation of pus-accumulations and the eventual restoration of an unhindered blood-supply to the vital medullary centers.

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*Read at the twentieth annual meeting of the American Laryngological, Rhinological and Otological Society, Atlantic City, June 19, 1911.

The operation, premised upon this line of reasoning, was undertaken by us and by a number of other surgeons, and reports of the cases operated on are a matter of record.

The additional prerequisite to success was thought to be a very early institution of this surgical relief before the disease had exhausted the patient and general sepsis had supervened. To this end much work and study was expended in disentangling the complex picture of meningitis so as to give data upon which an early diagnosis might be based. Even with all these conditions squarely met in our own hands, the establishment of drainage and its accompanying phenomena failed to secure the desired end.

Critical study of the cases operated on presents the basis for the opinion that meningitis is not simply a surgical problem, to be solved by finding a safe method by which to eliminate the pus-accumulation in the cerebro-spinal fluid and to establish intracranial decompression; the analogy between the situation presented in purulent involvement of the meninges and infections of the peritoneum, or the pleura, does not hold.

In the central nervous system we have to deal with elements and factors, partly anatomic and partly physiologic, whose importance we have only come to comprehend since employing the operation on the human body. In the peritoneum or the pleura these elements are absent. In the central nervous system we have the arterial and nervous systems, and in addition we have the cerebro-spinal fluid secreted in the ventricles and actively circulating and eventually emptying into the venous system. Added to its other activities, this fluid, passing over the brain surfaces and interspaces, performs the function of carrying away from the brain cells the products of brain metabolism. To maintain its mechanism intact a closed circuit seems necessary. An opening into this closed system at any point, and permanently keeping the gateway open, stops the usual flow of this fluid stream over its customary courses by changing the stream's direction. Thus do I account for some of Dr. Day's observations at autopsy.

While it is perfectly true that drainage of this fluid has been accomplished by lumbar puncture, by operations on the vertebrae, by ventricular punctures, the drainage of the cisterna magna by the method we advocated opened the flood-gate much more widely and probably maintained it open for too long a time. The even, generalized support which this water-bed affords to brain surface artery and vein walls, and to the loosely connecting strands of the pia mater, is removed rather abruptly. Significant in this connection is the heroic effort which the human economy makes at replacement when the cerebro-spinal fluid current is interrupted at any point in the cycle of its circulation. For example: In cases of cerebro-spinal flow through the cribriform plate into the nose, the fluid has been collected and gallons of it have been found to be secreted in this effort of Nature to maintain a given degree of fluid-pressure in the skull. In decompression operations we have observed dressings and pillows saturated for days, Nature making the effort to keep a certain amount of fluid-pressure at par within the skull. The advocates of repeated lumbar puncture as a therapeutic measure count on this very act of replacement by a fluid of assumed higher bacteriacidal properties to help combat the infection.

Finally, it is of importance to note that in two of the cases which recovered after drainage of the cisterna magna, one operated upon by Day, a circumscribed meningitis and cerebellar abscess, and the other of pneumococcus meningitis, operated on by Beck—that but a scanty amount of cerebro-spinal fluid escaped after the first twenty-four hours.

Comprehending the import of these facts and studying the clinical material upon which the operations were performed, makes it an inevitable conclusion that the criterion of our successful surgery does not rest upon the establishment of drainage, *per se*, of the central nervous system. Whether or not some further modification of technic will meet the situation, as we now see it after two years' further study, remains, for the present, unanswered.

Finally, another factor inherent to the issues involved in purulent meningitis needs study. Operation does not control this situation at all! Our previous knowledge of this state was meager indeed! Its importance has only become emphasized through the study we were enabled to make of the course and character of the disease when the compression-factors were removed by operation. I refer to the inflammatory reaction in the brain-substance themselves—which is termed "cerebritis." The change in the brain-tissue is a factor of great moment in the aspect of the situation we are discussing!

Ewing W. Day, in the analysis of the cases presented before us last year, made the important observation that "the clinical course of suppurative meningitis, when subjected to the cisternal drainage, was divisable into three distinct periods": 1. The period of invasion; 2. The period of improvement, and 3, the period of sepsis. Our study substantiates this observation, but, with the explanation offered by Day regarding these events, issue is taken in part, at least. Day calls attention to the diversion of the fluid from its normal channels, and contends that, because the fluid is diverted and no longer passes over the infected brain-surfaces, leaving the skull after operation by the route of the cisterna magna, the toxins are no longer washed into the circulation and the fall of temperature with the consequent period of improvement supervene. Furthermore, since all of the infection entangled in the meshes of the arachnoidal spaces does not drain back to the cisternal opening, therefore these remaining foci, unovercome by Nature, spread the infection and usher in the final period of sepsis.

In the first place, we are by no means certain that the third period habitually observed in such cases is one of sepsis. In the second place, to accept Day's reasoning, it would have to be conceded that the infection spreads within the skull, *en masse,* along the arachnoidal spaces—a supposition by no means accepted as fact.

Let us examine both these questions for a moment, referring briefly to some factors bearing on the argument: Were it true that the infection spread *en masse,* washed onward by the flow of the cerebro-spinal fluid from whichever place witnessed its original entrance into the skull cavity, then how account for the usual finding of the greatest purulent exudate, collected at the base of the brain and in the posterior cranial fossa, and this in spite of the fact that the direction of the flow of the cerebro-spinal fluid is away from the base and upwards toward the Pacchionian bodies and the superior longitudinal sinus?

Additional contradictory evidence is furnished by many autopsy reports from both otogenic and traumatic meningitides, where an infection of the meninges was by contiguity assumed—one would expect the greatest pus-collections to be found adjacent to the site of the fracture of the skull in the one instance, or in the neighborhood of the ear-structures in the other instance.

I believe that the larger number of intra-meningeal invasions are brought about by the hematogenous route, and I think that in otogenic meningitis the mechanics of infection are analogous to those which are found in the tuberculous and the meningococcic types of meningitides. (See Elser and Hunton, *Journal of Med. Research,* Vol. 20, No. 4, June, 1909).

If we accept this hypothesis, then the improvement is not dependent on the lack of toxins generated and washed away from the blood-stream, but is due to the remission of symptoms wholly due to decompression effects on the vital centers, and the unembarassed blood-supply to the brain tissue as a whole.

I showed in my paper, two years ago, that an edema of the brain-tissue presented itself as an accompanying phenomena of the compressed blood-supply; an analogy is found in the kidney, where edema of its tissues are immediately and strikingly relieved by the simplest expedient of splitting the capsule of the kidney and relieving the compressed blood vessels. (Martin H. Fischer, "Nephritis.")

The infected brain-tissues areas are still in a condition of inflammatory reaction, and the disease continues to a fatal termination, without, however, presenting the usual clinical picture. This reasoning is further substantiated by clinical studies of cases which ran a very atypical course. They have been observed and reported on by a number of clinicians. In these cases the patient suffers an endocranial infection, but the disease runs its entire course without any physical signs of cerebral compression. The suspicion of meningeal involvement is presented sometimes only by a feeling of "non-well-being," accompanied by headache. Occasionally there is a mild temperature curve. T. Passmore Berens and Ewing W. Day reported on such cases before the American Otological Society in 1913, and Dr. Dwyer also commented on having observed such cases. And since my interest in meningeal infections I have carefully followed a number of such cases throughout their clinical course. In the majority of those I saw, the streptococcus mucosis capsulatus was the invading organism. One could hardly realize that these patients, in some instances able to be up and about, were suffering from a disease which would terminate fatally, as they all did. A few hours before death supervened, prostration, coma, convulsions and exacerbations of temperature presented. The chemical and cyto-diagnosis of the cerebro-spinal fluid, and subsequently the bacterial findings in it gave the data for the hopeless prognosis, and premised the diagnosis.

My purpose in reverting to this type of meningitis here is to make the point that these cases present the exactly analogous condition to that of the patient suffering from the usual type of meningitis on whom the cisternal operation has been performed; they are in the same status as these patients during the so-called period of improvement, and their final clinical exhibitions of symptoms simulate the so-called terminal or third stage of the operative cases.

From this we deduce that the period of improvement really marks no advance toward the road of a cure of the meningitis, but it is only an evidence of the control of the pressure-factors in the case. That the final stage is not one of sepsis the study of the patients suggests. These patients, even when they ran high temperature curves, did not present themselves to us as individuals suffering from sepsis. The blood examinations which we conducted in this stage were uniformly found negative for cultures on various media.

The manner of death differs from that of a death by sepsis; the patients all suddenly die, without paralytic phenomena. It seems as if an unknown element suddenly overwhelmed them; death comes on very suddenly, not at all with the prolonged period of grave prostration, etc., which we see in other septic conditions. For example, in the case operated on by me, from the service of Dr. Phillips at the Manhattan Eye, Ear and Throat Hospital, the patient was sitting up in bed, drinking water, which he had called for; there had been no involuntary urination or evacuation of the bowels, etc.; the man seemed in full control of his functions.

The only death which I have seen which simulated these was a case where, in the removal of a goiter, the manipulation of the tumor had evidently set free so much thyroid secretions that, on the day following the operation, the patient suddenly was overwhelmed, and when, one minute before there was evidence of all life's activities, two minutes later there was no life appreciable.

I contend that the manner of death is significant of the inflammation of the brain-tissue, which is progressively advancing in nature, and that when the cells composing the brain itself are affected to a given degree, unknown in its definitiveness by any means at present at our command, then life ceases because its governing, controlling and co-relating centers are inherently prevented from continuing their functional activity.

Much work on this line, which, to be productive, must include an exhaustive study of the metabolic tissue changes in the brain, remains to be done.

These conceptions regarding meningitis have been won because we employed the operation of cisternal drainage and carefully studied the conditions which resulted from the operation. In-so-far as this newly acquired knowledge may serve as a stepping-stone toward the eventual solution of these additional problems the operation of cisternal drainage may yet mark an epoch in our efforts to combat the ravages of this disease.

A few comment from the practical side of the question are now in order: In our first communication we presented the conception that meningitides resolved themselves into two distinct types of cases, the one in which brain-pressure symptoms predominate and overshadow the entire clinical picture, the other a type in which the so-called pressure-symptoms play but a small role, but where the clinical picture is one produced by bacterial intoxication and poisons from the accumulation of the disarranged brain-tissue-cell metabolism.

The meningitis whose clinical picture is overshadowed by pressure-symptoms, the so-called "Meningitis serosa maligna" of Dietl, Boenninghaus and Phillips—is the type of less frequent occurrence. In the reports presented by Day, Dench, Emerson and Beck, and in the ensuing discussions on these reports, I fail to find one case of this type. Personally I had under observation, and operated on, one such case, but, here too, the relief of the pressure-symptoms did not prevent the fatal termination of the case. Life, however, was appreciably prolonged over the time in which we had been wont to see it last. It is only fair to add that the outcome of one case submitted to the operation gives us no determining data as to the value of the operation in this class of case.

Regarding much of the reports in our literature, details essential to make a critical study are lacking along the lines which I have mapped out for myself and, therefore, with due respect to the observers' reports, I submit that their evidence is too often unconvincing as to the nature of the lesion which they were submitting to the test of operative intervention. Results obtained from operation in such cases are valueless from every standpoint.

The writer forbears to subject to a more critical review those cases which appear to him to be incorrectly diagnosed, because they appear in our literature as brief outlines of case-histories rather than fully described case-reports, and the data upon which the given diagnoses were based are not available in the reports.

All the remaining case-reports seem to be such as did not develop pressure-symptoms as a dominating element in the disease, but presented evidence of advancing bacterial and toxic effects, and symptoms which we have come to regard as general sepsis. It was never contended that drainage of the cisterna magna *per se* would effect a cure in this type of case.

The writer's experience is limited to having operated in six cases, and to having studied five others in most of which he assisted at operation. Dr. Haynes' experience is limited to seven cases in which he operated—these cases, excepting one already referred to, all belonged to the second type of meningitis.

What has been accomplished by the operation of drainage of the cisterna magna besides permitting a keener insight into the nature and character of the course and type of the disease? The operation has saved lives. In the cases reported, both by Day and by Francis P. Emerson, rupture of cerebellar abscesses—not previously known to exist in the cases—and evacuation of the abscess' contents by way of the cisternal route, made possible the recovery of these patients. Had the cisterna magna not been opened in these cases general meningeal infection would, in all probability, have resulted from the eventual breaking of the abscess into the cerebro-spinal fluid, which would have carried the pus-elements throughout the central nervous system.

Finally, the case reported by Beck in the *Illinois Medical Journal*, November, 1913, and referred to in our transactions of last year. In it he gives the story of a brilliant success in saving life in a case where blood-pressure readings and other findings closely corroborate the reasoning adduced in support of this surgical procedure. The patient, a young woman, recovered from a general meningeal pneumococcus infection.

The importance of this case is apparent when its history is read in juxtaposition to the statement of Professor Preysing in his resumé on meningitis, presented to the Otological Society of Germany in 1912, wherein he says that "in his study of literature he finds pneumococcic meningitis to be a universally fatal disease."

The cases reported as operated on, and heretofore published by other surgeons, the cases operated on by Dr. Haynes and by myself. all died in spite of operation after a variable period extending from a few hours to a few weeks. In my own cases every effort was made to arrive at a very early diagnosis, but even this very early intervention of surgical effort did not bring the hoped-for relief.

We believe that the operation should not be discarded entirely. It may prove a useful measure in selected cases, and if ever the other factors entering into the problems presented in meningitides come to solution this means of operating will probably find renewed use because of the easy access it permits to the parts affected.

With the statement that "he who says it cannot be done is apt to find himself interrupted by some one doing it," I desire to register my optomistic belief that we are on the right road, that the surgical treatment of meningitis has advanced our comprehension of the disease we are trying to overcome, and that, eventually, means will be found to lessen the mortality percentage in this grave condition.

616 Madison Avenue.

THE PROPER FIELDS OF MEDICINE AND SURGERY IN DISEASES OF THE UPPER AIR PASSAGES.*

DR. JOHN A. THOMPSON, Cincinnati, Ohio.

One-half of all the diseases it is our daily work to treat are curable by medicinal means alone. With a specialty developing as rapidly as ours has done in the last thirty years it is only natural that most of our programs at society meetings and most of the papers contributed to our journals should deal with diagnostic problems and operative technic. Since treatment is or should be so large a part of our daily task is it not time to give to rational therapy some of the thought and study we have heretofore devoted to surgery? He is a poor laryngologist who sees in every new patient only fresh operative material, or who believes all disease of the upper air passages should be surgically treated.

An intelligent use of known methods in medicine will often prevent complications that make operation necessary. For example, acute rhinitis and la grippe can both be aborted if treated intelligently at the beginning of the attack. The patient whose attack is aborted does not develop an acute purulent sinusitis or otitis media. He escapes consequently a possible mastoiditis, sinus thrombosis, meningitis or brain abscess. Is it not as much our duty to those who trust us, to prevent these possible complications, as it is to do a successful operation after they have developed? Are we not better surgeons when we save our patients the necessity for an operation than when we do one skillfully?

The common diseases of the nose and throat are easily separated for treatment into three classes: First, those the treatment of which is purely surgical. These are deformities and deflections of the septum nasi, chronic sinusitis, all tumors, benign or malignant, adenoids, hypertrophied tonsils, quinsy, foreign bodies, hemorrhages, retro-pharyngeal abscess and stenosis of the larynx. In some of this class preliminary treatment makes the operation easier and the recovery surer.

Before doing a submucous resection of the septum the nose should be treated until the overlying mucosa is as healthy as it is possible to get it. Over the convex portion of the deflection or at the anterior end of a spur will usually be found a diseased condition which the text-books ignore. The epithelium is eroded, the surface is covered with scabs. Around this surface is a congested area. The membrane in the involved region is thin and fragile, does not separate readily from the cartilage, and tears easily. If the line of incision passes through the diseased membrane, stitches will tear out of it. This condition, I believe, to be a chronic eczema. It can be cured by the use of a salve containing a dram each of borax and boric acid to the ounce of vaseline. The patient should apply this salve twice daily. If there is so much congestion that bleeding occurs when the scabs are removed, applications three times a week of a 12 per cent solution of silver nitrate should be made. With this disease cured, the submucous resection is much easier to do and the liability to perforation is much less.

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*Read at the twentieth annual meeting of the American Laryngological, Rhinological and Otological Society, Atlantic City, June 20, 1914.

In the folds of adenoids there is always muco-pus. In the crypts of hypertrophied tonsils there are always foci of infection. There will be fewer cases of complicating otitis media after operation, less hemorrhage at the time of operation and less fever during convalescence, if we treat the diseased tonsils and adenoids a few days and free them of most of the infectious discharge, before operating.

The second class includes diseases where combined medical and surgical treatment is necessary for a cure. The most important, because the most frequent disease in this class is hypertrophic rhinitis. The removal of the newly formed connective tissue in the turbinates is easy. But it will form again in other places unless the chronic inflammation that produced it is treated and cured. The first step in treatment is cleansing the mucous membrane. The best solutions for this purpose are those described by Wyat Wyngrave in the *Annals of Otology, Rhinology and Laryngology,* August, 1902. With a rational formula given in this article for every condition we treat, it seems strange to the writer that laryngologists will continue to buy by the gallon proprietary remedies that are less effective and much more expensive than the solutions suggested by Wyngrave.

After cleansing the membrane of the accumulated secretions what remedies will cure? We have congestion both of the superficial vessels and of the turbinal bodies. The membrane is hypersensitive like all inflamed tissues. The secretion over the surface is filled with bacteria, some saprophytic, some pathogenic. The indications are for an analgesic germicide that will at the same time relieve congestion. Menthol meets all these requirements. In solution, it is a germicide in proportions of 1-1000. It is a local anesthetic. While it may cause congestion of the overlying mucosa, clinical observation shows that it lessens the circulation of blood in the turbinate bodies and the flow of mucus from the glands. It is a rubefacient if too concentrated, and the oily solutions for the nose should rarely contain over one per cent of this drug. Usually three grains to the ounce is better.

Camphor is similar in its local action to menthol and can be advantageously combined with it. Five grains to the ounce is enough for ordinary use. The mixture is more agreeable if flavored with oil of cloves.

Tertiary syphilitic ulcer is another disease requiring combined treatment. To the ordinary cleansing wash a small amount of potassium permanganate should be added. Diluted hydrogen peroxid solutions must often be used to loosen the tenacious offensive scabs in this condition. After the dead bone, exuberant granulations and polypi have been removed, touching the cleansed surface with a 10 per cent nitrate of silver solution and then covering it with powdered thymol iodid, has been the most successful treatment.

In chronic granular pharyngitis surgery will destroy the granulations but will not cure the chronic inflammation that produced them. After normal nasal respiration has been restored, applications of zinc chlorid from five to fifteen grains to the ounce of glycerin, have given the best results. In making this solution, it must be remembered that a little C. P. hydrochloric acid is necessary to prevent the zinc precipitating out as an oxychlorid and leaving the solution inert.

Edema of the glottis is another disease requiring combined surgical and medical treatment. Diuretics and diaphoretics internally should be given early. After scarification, the bleeding may be increased by steam inhalations containing tincture of benzoin. Later, sprays of adrenalin solution will relieve the congestion, lessen the swelling, and hasten the recovery of the patient.

Of the diseases of the upper air passages that are curable by medical treatment alone acute rhinitis is the most common. Without bacteriological examination it is difficult to distinguish the simple from the influenzal type of rhinitis. The differentiation is not important as both yield to the same treatment. An ordinary attack lasts from seven to ten days. If there is an underlying slight chronic inflammation, the attack will be prolonged to three weeks of misery for the sufferer. Intelligently treated, a cure can be obtained in from twenty-four to forty-eight hours and the patient saved days and weeks of annoyance as well as freed from the liability to dangerous complications. Many chronic inflammations may also be prevented if the patient is told how to treat his colds. It has been my custom for years to say to a patient whom I had treated for hypertrophic rhinitis, chronic pharyngitis, chronic laryngitis, chronic trachitis, chronic bronchitis, with or without asthma, at his last visit, "Come back the first day you feel a cold beginning, and I will prevent a return of your chronic disease." Many patients have acted on this advice. Some I have watched for twenty-five years. I see them only at such times as they feel a beginning attack. In none of them can any trace of the old chronic disease be detected, except in a few of the chronic laryngitis cases where the cords had thickened before I saw them. As the years pass I see less of them because they rarely "catch cold." Some professional voice users who have been the most faithful in following the line of treatment indicated come in only once or twice a year.

The treatment ordered to abort an acute attack, with variations to suit individual conditions, is first a sweat. It does not matter how this is induced, either by exercise, a Turkish or Russian bath, the ordinary tub bath and hot drinks, a vapor bath or by drugs. A free perspiration is the essential thing, however it may be induced. Saline cathartics help in this eliminative process and in restoring the normal circulation in the different body areas. Of the drugs that may be given aconite, gelseminum, Dover's powder and aspirin are the best. The first two are so depressant that they are rarely used. The old favorite absorptives for a cold, quinine and the salicylates, are not safe remedies for the patients we see, as many of them have old otitic complications that are aggravated by these drugs. If your patient can be persuaded to remain in bed for a day after the sweat it will benefit him greatly.

To open the nose blocked by the swelling a 1-8000 solution of adrenalin may be used every three hours. If the vehicle used to dilute the adrenalin is a saturated solution of boric acid add a non-irritating antiseptic to your treatment of the infected membrane. Adrenalin solution diluted in this way will not decompose. The shrinking of the turbinates and the mucosa by this treatment permits normal drainage of the sinuses and keeps them healthy. The adrenalin spray should be followed in five minutes by the insufflation of a powder containing two parts by weight of boric acid and one part of zinc stearate. It forms a protective coating to the inflamed membrane and is actively antiseptic. Where the patient is seen in the second stage of the disease and the serous discharge from the nose is annoying, a spray containing one grain of atropin to two ounces of liquid petroleum is very effective. The alkaloid, not a salt, must be used in this prescription. Atropin acts locally on the glands. It is not good treatment to check the action of all the glands of the body by giving any form of belladonna internally when a local action is desired. The patient should be cautioned not to use this solution too freely in the nose or it will have a disagreeable mydriatic action.

For the third stage of acute rhinitis we need an active antiseptic powder that is not irritating. This formula is yet to be discovered.

Our recent text-books usually give a formula containing oil of eucalyptus, thymol, menthol and camphor dissolved in oil for the treatment of this third stage. The first two and the last two drugs differ so much in their local action they should never be combined in one solution. Thymol and eucalyptus are active stimulants to the circulation when used locally and are contra-indicated in acute inflammations. The cooling anesthetic effect of the menthol and camphor is co-incident with shrinking of the turbinates.

The acute catarrhal sinusitis that often accompanies acute rhinitis will be either prevented or cured by the treatment for the primary disease. Where a sinusitis is present during an acute rhinitis, when the patient first comes for treatment the only additional measures needed are the local applications of cocain solutions about the normal openings of the sinuses and dry heat externally for the relief of pain.

Acute laryngitis is promptly cured by the abortive measures recommended for acute rhinitis. Inhalations of compound tincture of benzoin, a dram to a pint of boiling water, have a magical curative effect in many cases.

Simple chronic rhinitis produces no obstructive lesion in the nose and there is no indication for surgical intervention in uncomplicated cases. In the intumescent type of chronic rhinitis the nasal obstruction is due to dilatation of the turbinated bodies and there is no new-formed tissue to remove. The congestion of the turbinates is not a sufficient indication for their removal. A cure by treatment takes a longer time than symptomatic relief by operation, but one method preserves and the other destroys the important physiological function of the nose.

In simple chronic rhinitis we are treating an inflammation that is present twenty-four hours of every day. It cannot be cured by visits to the specialists two or three times a week. The patient himself must be given an effective remedy to use at least twice daily so as to get a curative influence acting almost as continuously as the pathological one. The solution originally recommended by Hare* (menthol, grs. III; camphor, grs. V; petrolat liq., oz. I) has been a very efficient one in the hands of my patients for many years. In intumescent rhinitis, which is only an early stage of hypertrophic rhinitis, some additional treatment is needed. There is a dilatation of the venous sinuses of the turbinated bodies. This results in the escape of white blood corpuscles into the tissues and their organization into connective tissue. Weak solutions of adrenalin contract the blood vessels and prevent the formation of new tissue. If the solution is not too concentrated there is no paralytic dilatation following its use as often happens with cocain. It can be repeated with the same tonic effect as massage or electricity would have on the unstriped muscular fiber of the turbinated bodies. Many cases of intumescent rhinitis can be cured by adrenalin combined with such general treatment as the individual patient needs.

Patients with chronic purulent rhinitis are rarely seen in the specialist's office. They are very common in the clinics where uncleanly people from unsanitary tenements come for relief. These children are difficult to handle; so in our clinic work we have adopted a treatment the mother can use at home. She is given a salve containing a dram each of borax and boric acid in an ounce of petrolatum. A lump of this salve the size of a pea is to be placed in each nostril when the child takes its afternoon nap and when it retires at night. The heat of the body melts this salve and if the child is kept on his back the whole diseased area is covered. The borax dissolves the crusted discharge and the acid cures through its antiseptic action. The only other treatment is washing out the nose with a warm 2 per cent sodium bicarbonate solution in the morning, in patients where the discharge is very free. A cure will be obtained in from four to six weeks in all uncomplicated cases.

Atrophic rhinitis is probably misnamed. There is nothing in the course of the disease to show that it is essentially inflammatory. The clinical picture is that of a disease of nutrition with intercurrent attacks of inflammation. Where a pathological process is destructive from the beginning no sane reason can be given for adding to it a surgical destruction of the diseased tissues. Our curative efforts must seek to increase the nutrition by increasing the blood supply without enough irritation to cause inflammation. If the remedies which increase the nutrition are at the same time antiseptic and odorous, we have met all the indications that our present knowledge of the disease gives us.

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*System of Therapeutics.

Such a combination is thymol one grain, oil of eucalyptus one dram, liquid petrolatum enough to make two ounces. This combination used after the nose is cleaned, noticeably reddens the membrane without causing inflammation. It is destructive to the saprophytic bacteria and molds that swarm in the accumulated secretions. The odor of this combination is pleasant and overcomes the disagreeable stench of atrophic rhinitis better than anything I have ever found after years of experimenting. The patient herself should use this remedy twice or three times daily and usually after months of treatment all the disagreeable symptoms will disappear. The natural oil of eucalyptus must be used, as the synthetic oil is very irritating. The iodin treatment often recommended for atrophic rhinitis causes so much irritation that it hastens the destructive changes. Ichthyol relieves symptoms by its disinfectant action but it does not give the necessary stimulus to nutrition.

Chronic laryngitis, chronic trachitis and chronic bronchitis should be considered, as they should be treated at the same time. Chronic bronchitis has not been considered a disease that laryngologists should treat but there are good reasons for saying he can do more for these patients than the internist can. The prevention of inflammation in the lower air passages by restoring normal nasal respiration is familiar to us all. We have given little attention to the cure of chronic diseases in the lower air passages by direct treatment. It is easy for the trained laryngologist to apply remedies directly to the diseased mucosa in all parts of the lung and to know the composition of his remedies has not been changed. Of all the expectorants the internist uses, only one, chlorid of ammonium, reaches the lung in the form it is given. We can apply the knowledge of mucous membrane therapy gained by the observation of diseases in the nose and throat to the treatment of chronic bronchitis with much better results than can be obtained by internal treatment. An additional reason for treating these three diseases by tracheal injection is found in the fact that if chronic laryngitis is treated alone, frequent recurrences are caused by acute exacerbations extending up to the larynx from the bronchi. Cure the trachitis and bronchitis and the larynx remains well. Bronchiectatic cavities can be disinfected by the persistent use of tracheal injections and these patients freed from their annoying cough, offensive breath and chronic sepsis.

Years of clinical observation of asthmatic patients have led to these conclusions. All asthmatics have chronic bronchitis, some with dilated bronchi, pulmonary emphysema and dilated hearts. An asthmatic paroxysm is always preceded by an acute exacerbation of the chronic bronchitis. Give the appropriate tracheal injections in the intervals between the paroxysms and you will relieve or cure the asthma.

In a paper presented to this society in 1897 I gave the details of this treatment. The only change in the solutions there recommended, that has stood the test of years, is the addition of monochlorphenol to the remedies used. There are several allotropic forms of this drug. The one used is the liquid orthochlorphenol. Monochlorphenol is also our most potent remedy in acute follicular tonsillitis. In the Christ Hospital frequent epidemics of this disease have disabled the nursing corps just when they were most needed. Irrigations of the throat every three hours with water as hot as it can be borne, followed by a spray containing 2 per cent of monochlorphenol in oil has shortened the duration of the attacks one-half and has lessened their severity.

In a few cases of erysipelas of the nose and throat that I have treated the same solution has been very effective.

Vincent's angina yields very slowly to our older remedies. Two recent cases were relieved of pain in twenty-four hours and all membrane disappeared in seventy-two hours after treatment was begun with a 2 per cent trituration of salvarsan in glycerin.

The experiments of Dunbar (*Annals of Otology, Rhinology and Laryngology*, 1905. p. 310) have given us a basis for a rational therapy in hay fever. He has shown that only the portion of the pollen that is soluble in alkalin solutions is irritating to the mucous membranes of susceptible people. The ideal treatment of hay fever is, of course, to send the patients to regions where they are immune. But working-people cannot leave their employment annually for the necessary six weeks or two months. A treatment that will allow them to live comfortably at home is a blessing to many. The following system of treatment has given this result in more than 50 per cent of my cases. Enough boracic acid is added to the cleansing wash used to make the solution slightly acid. After cleansing the nose it is sprayed with an adrenalin solution varying in strength from one in five thousand to one in eight thousand as the individual case requires. Five minutes later a powder composed of zinc stearate one part, boric acid two parts, by weight, is blown into the nose. The powder serves a double purpose. It forms a protective coating over the irritated membrane. It keeps the secretions of the nose acid for a time and prevents the solution of the irritating portion of the pollen. The patient himself can use these remedies three or four times daily, and if he begins early in the attack, the disease rarely becomes severe enough to disable him. Conjunctival and bronchial complications must be treated at the physician's office.

A discussion of the therapy of the rarer diseases of the upper air passages would make this paper unreasonably long. We do not need many remedies to get results in the medicinal treatment of such diseases of the upper air passages as are curable without surgical intervention.

As an illustration of how much may be done by simple means I will report one case. The boat-house keeper on the lake in Michigan, where my summer home is located, had tuberculosis. One day while working on the engine of my boat he said: "If some one would stop the tickling in my throat I would get well. It keeps me coughing all night, and I have no chance to sleep or gain strength." Examination of his throat showed the catarrhal laryngitis that so often complicates pulmonary tuberculosis. I gave him an atomizer and a prescription for the menthol camphor solution previously described. It stopped the throat cough and allowed him to sleep. In the next five weeks he gained twenty-five pounds in weight. When I examined him a year later there were no signs of consolidation in the lung and there was no inflammation in the throat. Two years after the treatment was given he weighed 220 pounds and was a picture of health and vigor. A little thing, the curing of a throat cough, turned the scales in his favor. But it was not a little thing for his family to keep its bread winner and for his community to keep an honest, intelligent, progressive citizen. All laryngologists who study treatment as they study operative technic can show many such cures.

628 Elm street.

THE AIR WE BREATHE—A STUDY OF TEMPERATURE, HUMIDITY AND DUST CONTENTS.*

DR. THOMAS HUBBARD, Toledo, Ohio.

I venture out of the valley of tradition in selecting the subject-matter for the conventional address and in so doing I sincerely hope that I may not be accused of setting a bad example. Our program is usually a model of concentration and this is one road to perfection, but if we are to keep in intimate harmony with the spirit of the times we must occasionally ascend the hills and take a broad look around.

Prevention of disease is not a defined special art. It is a creed of medicine, and if you analyze your life's work you will find that you have the highest pride not in brilliant surgery, nor in invention or experimental research, but you will temporarily assume the patient's point of view and measure your real efficiency by a broad standard of health conservation.

Laryngology is exalted in modern medicine in that its part in prevention is to protect the main portal of entry of the body. It is to-day a dependable guardian of the welfare of the child—and as such, duty fulfilled, it leads in health conservation. The brilliant results credited to our special art are in themselves evidence enough that we are doing foundation-work, that is, correcting and strengthening vital functions.

Why do we devote so much of our thought and energy to attain right breathing? Bad breathing was formerly regarded more or less as a matter of inconvenience and an esthetic offense, but to-day we realize that normal respiration is a dominant factor in development, survival and ultimate physical and mental efficiency. Man inhales thirty to forty pounds of air daily and actually absorbs more than two pounds of oxygen—this is more than the total proteids ingested. Another index of the relative importance of the respiratory function is the fact that 80 per cent of total food energy is used in heat production. Oxidation is the essential bio-chemical source of heat. Thus we see that respiration is the main source of caloric energy and this alone expresses its importance as a vital function. We are essentially promoters of right breathing.

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*President's address delivered at the thirty-sixth annual meeting of the American Laryngological Association, Atlantic City, May 25, 1914.

Air is not a commercial commodity, as is our "daily bread," but healthful air is not always to be had without taking thought and spending money as we do for "creature comforts" and that is precisely what we are called upon to do. The solution of the problems of ventilation, or more particularly the preparation ("conditioning" is the new term) of the air we breathe, awaits only the consensus of scientific advice, and ours the duty, a special duty I should say, to not only help establish heat, ventilation and humidity standards but also to aid in educating public opinion. Architects and engineers are prepared to fulfill any reasonable demand.

Ventilation has reached a highly developed state and I mention it only incidentally as my theme is rather a consideration of *temperature*, *humidity* and *dust content*. We are concerned chiefly with the effects on the respiratory mucosa of these three varying qualities of the air we breathe, and we naturally give particular attention to the developmental period. The child spends all but a few hours of the day in the cold months within four walls breathing air artificial as to temperature, humidity and dust content and the physiologic habits are formed in this environment.

Temperature: Fire was man's first friend—that is, conservation of body-caloric by artificial heat started the evolution of the higher nervous system, but, to carry this logic to an absurd extreme, one cannot say that mental precocity is in direct relation to the ingenuity in inventing and utilizing heating apparatus. Based on this theory the inhabitants of the Northern and Middle States might claim, for instance, that they are at least 10 degrees more progressive than Europeans. Heating and ventilating contracts in public school buildings specify 70 degrees in America, and in England 60 degrees. They might raise the question as to which temperature-standard favors the more rapid expansion of the intellect. Are we really 10 degrees hotter on the trail of Truth?

It is interesting to follow the gradual change that has taken place in our own country during the past half century in artificial heat standards. In 1820, American text-books gave 50 to 55 degrees F. as the healthful, comfortable temperature of the living room and nursery (and I should add in passing that the natural relative humidity, taking into consideration the methods of heating,—luminous heat and direct radiation, the open fire-place, ovens and the Franklin stove—would probably be about 40 per cent. In 1850, the comfortable temperature was stated to be 62 degrees F. and in the next thirty years it was raised to 72 degrees F. Now should we consider this 17 degree change (55 to 72) a triumph of man's increasing dominance over the elements, or are we on the contrary 17 degrees decadent in physical vigor? Our ancestors of two generations ago would have considered 72 degrees the proper temperature for the aged and infirm, but not for youth. This whole record is a commentary on ingenuity in invention and extravagance in burning up natural fuel resources. (The base burner and hot air furnace were invented about 1840.) Again I must mention humidity in this connection. The moisture in the air of a building at 70 degrees F., (this applies particularly to public school buildings and places of sedentary employment) would naturally be below 25 per cent relative. Therefore, if we were to state that in the period from, say, 1825 to 1875, we reduced the standard of humidity from 40 per cent or 50 per cent relative to 25 per cent or less it would be a more significant fact from the hygienic standpoint than to call attention to the 17 degrees increase in temperature during that period. In other words, we have worshiped a false god of comfort,—Fahrenheit. Rather too mercurial!

The difficulties of natural ventilation (that is, by windows, etc.) are immensely increased at 70 degrees with minus 25 per cent relative humidity standard. Drafts of outside air are unendurable because the velocity of the incoming air is in direct relation to the relative differences in temperature, and further, the contrast in temperature and particularly in humidity is so marked that it produces real discomfort. A strata of cold humid air (80 per cent relative) of considerable velocity about the lower extremities produces a disturbing local chill and the rest of the body, including the nasal mucosa, is experiencing 70 degrees with 25 per cent relative humidity. The essential fact, to which all will agree, theoretically and from experience, is that a standard of 70 degrees and higher, with necessarily low relative humidity, makes efficient natural ventilation almost impractical. At a temperature of 65 degrees with humidity 40 to 50 per cent relative, the perception of the drafts of natural (window) ventilation is less. It is not dependent on merely the difference of 5 degrees in temperature. The water vapor in the air of the room is an equalizer of heat radiation. It tempers sudden changes. The figures, 70 degrees with 25 per cent relative humidity and 40 degrees with 80 per cent relative humidity—that is, the room temperature and the inflowing air from an opened window—graphically express the complex disturbance (we may call it shock) of the heat-regulating functions, the same having been made more delicate by being habituated to the hot, dry atmosphere. In passing I should mention that the hot air habit has resulted in absurd fashions in the matter of protective clothing. This is a big factor in the causation of acute and chronic catarrh.

We should study *humidity* not as a secondary ingredient of the atmosphere, but as an entity. Water vapor exists in the air not passively but positively. The vapor pressure of the air is as definite as barometric pressure. Air does not absorb moisture, but on the contrary its presence in the air in varying quantities is dependent on the relative vapor pressure. In other words, dry air coming in contact with a moist surface becomes more humid because of the natural tendency to equalize vapor pressure and not because the air is hygroscopic in the same sense that is chlorid of calcium. Keep that property clearly in mind. for this constitutes the difficulty in artificial humidification. *There is no natural attraction between air and water vapor.* Vapor diffuses more rapidly in a vacuum than in air. The terms "water hunger air," "dessicating air," and even "saturated air" are mere figures of speech but they are convenient and rather indispensable terms in the discussion of this subject and they should not be interpreted literally.

A few figures (not altogether dry ones) will illustrate the difficulties of maintaining a healthful degree of humidity in buildings heated to our present standard. But first a few words concerning *humidity standards.* This is a very broad subject if we attempt to consider it as applied in the industries and public buildings in general. It is better to limit the scope of the discussion to school buildings and dwellings and places of sedentary employment. The mechanical problems involved in the artificial regulation of indoor atmosphere are complex. It is impractical to attempt a perfect imitation of natural conditions. The consensus of opinion is that 40 to 50 per cent relative humidity is a healthful and practical compromise. As stated, the difficulty of proper humidification arises chiefly from the fact that the temperature standard is inordinately high.

Here are some of the figures: A cubic foot of atmospheric air can hold, at 30 degrees F., 2 gr. of water-vapor. That is, 100 per cent relative humidity. At 70 degrees it can hold about 8 gr. of water-vapor—an increase of about 6 gr. per cu. ft, and at 80 degrees about 11 gr. If we heat air, temperature 30 degrees, having 80 per cent relative humidity (an average condition in cold weather) up to 70 degrees its relative humidity drops to about 20 per cent. The problem presented is to add enough moisture to maintain 50 per cent more or less at 70 degrees F. A nine-room house, cubic capacity about 30,000 cu. ft.—air changed once an hour (about twenty times daily, the minimum rate of change consistent with warming it by indirect radiation)—would require about twenty gallons of water to be added daily to the warmed air. *About a gallon an hour.* A very considerable amount—in fact it would be quite impractical to evaporate this amount by natural methods, such as ordinary evaporating pans on registers and radiators. The evaporating pan heated by small caliber steam coils immersed in the water will impart to the air in the furnace or air ducts a sufficient amount of water-vapor. This apparatus is used in large plants with forced ventilation. The evaporating pan has been successfully adapted to the ordinary hot-air furnace—a large copper pan over the dome, the essential feature being a continuous automatic supply of water by gravitation from a reservoir outside the furnace. The objections to live steam as the source of humidity are the disagreeable odor and the noise. Its use is limited to large buildings. The humidistat is quite practical and satisfactory in control of the artificial humidifiers, especially the steam injector type. The atomizer type of humidifier is used successfully in certain factories. The air is first dried by freezing and then a definite amount of water is sprayed into the rewarmed air maintaining any desired degree of humidity. But all this is for a visible profit. and health conservation as a commercial asset cannot command such expenditure. It is evident that the whole problem of moistening the air to the healthful standard is made difficult and in many instances impractical by the unnaturally high temperature standard to which we have drifted. It is the last 10 degrees that makes the trouble, and by the way we may add the fuel expense of heating a building in cold weather from 60 to 70 degrees exceeds the total expense of raising the heat from 20 to 60 degrees F. *Sixty to 65 degrees is the "critical point" in heating air. Above that degree (65* *degrees F.) there is positive resistance due, possibly to the low humidity* and the relative cost of heating the air and maintaining it at 70 degrees and higher increases in a geometrical ratio. It is a strange co-incidence that this "critical point" should co-incide with the teachings of hygiene and it is also the standard of the greenhouse. One cannot but surmise that there is a fundamental principle which governs both. In other words *65 degrees is the natural maximum temperature considered from the physical, hygienic or economic standpoint.* These conclusions are worthy of consideration, for ultimately America will awaken to the foolishness of extravagance, especially where there is involved corresponding health deterioration.

Ventilation standards for varying conditions—dwellings, school rooms, work-shops and hospitals and assembly rooms—are well understood and money is liberally and well expended in that line. It may seem exaggeration to assert that ventilation is ever overdone, but I think that a few illustrations will make it evident that in certain instances such is the fact. In hot-air furnace-heated houses and in all indirect heating systems the air of rooms must be displaced by incoming warm air from once to four times or more an hour to get the proper amount of heat. In cold weather the humidity of the warmed air is near 20 per cent relative. This is a sort of dry kiln effect and the more rapid the change of air (the more ventilation) the more effective the dessication of all material objects in the house. Even the furniture and piano complain. I would assert boldly that it is less injurious from the health point of view to live in an atmosphere a trifle overcharged with carbonic gas and organic vapor having at the same time a healthful humidity than to live almost continuously, as many do, in air having only 20 per cent or less relative humidity and 70 degrees F. and even higher temperature however low the percentage of vitiation. *There is such a thing as too much ventilation when the process is one of gradual reduction of humidity to a point far below the health standard.* In other words excess of carbonic acid gas and organic compounds are not the only constituents which determine the unfitness of the air of habitations.

A study of the relation of air conditions to diseases of the respiratory tract is strictly within our province and I have selected this subject because this group of physicians is peculiarly qualified to express an opinion. It is a matter of verified observation that the cold months are productive of an increase of catarrhal affections, as well as all acute infectious processes of the respiratory tract. This prevalence of winter catarrh is not creditable, to put it mildly, and calls for consistent effort along the lines of rational hygiene.

It is not possible to make comparisons between this and preceding generations as to adenoids, tonsils and hypertrophied turbinates and catarrhal affections in general, but it is essential to inquire—"Are we more sensitive to temperature variations and more subject to catarrhal affections than formerly and are we making rational effort in the line of prevention during the developmental period when the catarrhal habit is establishing?"

Let us take for example an average condition that obtains in the life of the child. It is fair to state that he lives in a temperature of about 70 degrees at least ten or twelve hours daily. (Bed room hygiene need scarcely be considered. The fresh air propaganda is working better at night than in day time.) During the cold months 70 degrees temperature implies a relative humidity rarely above 25 per cent, and it is positively sad to know that in many furnace-heated school rooms, as well as homes, the relative humidity is below 20 per cent (14 per cent has been recorded). The child habitually and many times daily leaves this unnatural atmosphere and immediately encounters a temperature of say 30 to 40 degrees with relative humidity of 80 per cent more or less. This feels like a cold saturated aerial blanket. There is a positive shock not only in general bodily discomfort but particularly to the respiratory tract. The sudden demand on the nasal radiators produces a degree of reactionary hyperemia that is almost inflammatory. One result of this is a chronic pathologic condition of the mucosa, abnormal anatomic relations and disturbed physiologic function. And worse than that, he gets it "coming and going." He enters this dry, hot atmosphere of the school room or home perspiring after the hurried walk, work or play and the water-vapor next to the skin diffuses into the air so rapidly that his skin is actually comparable to the wet bulb of the sling psychrometer, that is, several degrees colder than the actual room temperature. If he is a thoroughly wet bulb his surface (that is clothing next the skin) may be as much as 10 to 15 degrees colder than the air around him. Even his skin chaps and his hands, dirtier because of the roughness, are suggestive of the comparable condition of the upper respiratory tract in so far as retention of catarrhal and saprophytic germs are concerned.

This chill due to rapid evaporation of moisture is caused by the dryness and high temperature of the room air and it is the worst combination that obtains to disturb the heat-control mechanism. The skin and nasal mucosa are the chief sources of the afferent warnings to the heat center and vasomotor system and determine physiologic resistance to the shock of sudden changes of temperature. Hot, dry air at the signal station—the nasal mucosa—and a wet, cold skin cause an abnormal and the disturbing combination intensified and prolonged by the unnaturally rapid evaporation.

The secondary effect of this condition is that type of nasal reaction which we encounter clinically—congested turbinates on entering a warm room. Chronic congestion of the turbinates is the result of these sudden changes from dry, hot air to cold, moist air and *vice versa*, and thereby hangs a tale. A very considerable proportion of our work in children and adults is the outgrowth, directly or indirectly, of this perverted and exaggerated functional activity, namely, hypertrophies to the degree of preventing nasal respiration and the development of folds and pockets which are the source of cryptogenous infection, acute and chronic.

And what follows? Surgical correction of hypertrophied turbinates may restore the lumen to approximately normal but perfect functional harmony is not often secured. Certain it is that lacerated and scarred nasal mucosa has lost its keenness as a part of the signal system to the heat center, to say nothing of the destroyed glands, abnormal secretions and bad drainage. We have all had clinical confirmation of this fact,—patients with nasal passages made roomy by surgery, who complain that they have not the normal sensation of nasal respiration. In these rather extreme examples of perhaps too radical nasal surgery we have an exaggeration of the condition which is liable to follow even conservative turbinal surgery. The individual who has lost in any considerable degree that delicacy of nerve function that is of utmost importance in protecting the body against vicissitudes of weather and sudden temperature and humidity shocks is seriously handicapped and the recurrent acute as well as chronic catarrh is evidence of the degree of physiologic perturbation of the upper respiratory tract.

Dust and droplets (minute particles of moisture) are the other ingredients of the air which should be considered in this study. The atmospheric dust is as essential to life as is water-vapor. "No dust, no rain" is the axiom. We can consider bacteria and spores as dust in so far as air currents and moisture are concerned. Dust dissemination in the air of the room is determined by drafts and humidity. Dessication destroys most bacteria rapidly but spores are more resistant. Elaborate and conclusive experiments with factory dust distribution prove that in a moist air (40 to 50 per cent relative) precipitation takes place very promptly. A healthful relative humidity lessens the liability of transmissions of air-borne infections even though dessicative sterilization may be somewhat retarded thereby. Certain it is that a very dry air of high temperature, with the constant drafts resulting therefrom, favors rapid distribution of the dust and germs with corresponding danger of transmission of infection.

The propagation of air-borne infections of the respiratory mucosa is probably more dependent on coughing, than any other factor in distribution—as in whooping cough, for instance. A very enterprising germ, this. It tickles the phrenic and it is dissemination like pollen. The range of droplet infected air is a radius of twenty to ten feet, fore and aft. Coughing is probably more harmful than careless spitting, for it starts active germs in circulation. Now if there is any one symptom that we study and treat in a radical manner, it is coughing, and we merit our claim to special service in disease prevention in part because we eradicate the causes. As with whooping cough so it is with all catarrhal infections. *Coughing is a menace.* Moisture-free air is as a rule dust-charged air in that the available dust content is in circulation. Dry, dusty air is one of the irritants that excites coughing. The conclusion is evident. Moistening the air is a useful therapeutic measure. The psychrometer* is quite as essential as the thermometer in promotion of healthful conditions and comfort and in the study of the etiology and prevention of certain diseases. *"Conditioning" of the air we breathe should become one of the refinements of our special art.* Put a wet stocking on old Fahrenheit and he can tell you some secrets worth knowing.

In this discussion I have tried to impress the fact that the etiology of certain very prevalent acute and chronic diseases of the respiratory tract can be traced to the badly conditioned atmosphere of our habitations and above all I feel convinced that we are not giving sufficient attention to establishing healthful standards. The train of evils following such a national indiscretion is a long one. Neuroses, bad complexions and even absurdities in protective clothing and the vicious estheticism in the dress of this period are hot-house productions. We libel our climate by the tolerance of unhealthful artificial atmospheric conditions. *If 10 per cent of the present outlay in ventilation were diverted to "conditioning" the air it would not take long to educate toward more healthful and more economical standards of artificial temperature and humidity.*

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*The sling psychrometer is the type of humidometer used in the Weather Bureau service. Most of the automatic apparatus used for this purpose is unreliable. See Weather Bureau Bulletin.

EXAMPLES IN HUMIDIFICATION.

A nine-room house, cubic capacity 30,000 cu. ft., heated by direct radiation (stoves, radiators, etc.), fresh air only by natural leakage, outside air 30 degrees F. 80 per cent relative humidity. would require the evaporation of about eleven pints of water daily to maintain 50 per cent relative humidity at 70 degrees F. Same house and conditions would require six pints of water to maintain 40 per cent relative humidity at 65 degrees F.

The same house, heated by indirect radiation (hot air furnace) air changed hourly—about twenty times daily—outside air 30 degrees F., 80 per cent relative humidity—would require the evaporation of about *twenty gallons* of water to maintain 40 per cent relative humidity at 70 degrees F.

SCHOOL ROOM TESTS.

Sixty-eight degrees F. with 40 per cent relative humidity feels warmer than 72 degrees F. with 20 per cent.

Sixty-five degrees F. with 50 per cent relative humidity feels as comfortable as 70 degrees F. with 20 per cent relative humidity.

Sixty-eight degrees F. with 40 per cent relative humidity represents 10 to 15 per cent saving in fuel compared with 70 degrees, 20 per cent relative humidity.

Conclusion: Establish a proper humidity standard and the temperature of our habitations will drop to a healthful degree.

TEMPERATURE SHOCK EXPRESSED IN HUMIDITY CONTRASTS.

(1) Air, 30 degrees F., 80 per cent relative humidity warmed to 70 degrees has 20 per cent relative humidity.

(2) Air, 30 degrees F., 80 per cent relative humidity *warmed and humidified* to 70 degrees F., 50 per cent relative humidity.

Note.—The average humidity of the cold months is 70 per cent to 80 per cent in the North Atlantic States and Middle States.

The caloric shock experienced in passing from 70 degrees F., 20 per cent relative humidity into average winter atmosphere, 30 degrees F., 80 per cent relative humidity is chiefly dependent on humidity contrasts. The higher the humidity of the warmed air (up to 50 per cent) the less the caloric shock. Examples: Caloric shock (1) is represented by 80—20=60; caloric shock (2) is represented by 80—50=30. Caloric shock is the chief factor in the causation of so-called winter catarrh of the respiratory tract and the consequent anatomic abnormalities and physiologic disturbance result in permanent pathologic conditions.

515 Nicholas Building.

Modification of the Brophy Mouth-gag. R. E. Farr. *Jour. A. M. A.*, May 16, 1914, p. 1557.

The modification consists in a hinge attachment. When closed this instrument can be more easily introduced into the patient's mouth where it can be opened as wide as needed. Ed.

Treatment of Acute Frontal Sinus Inflammation. K. M. Menzel. *Monatchr. f. Ohrenh.*, Heft. 3, 1914, p. 334.

In order to avoid the removal of the anterior part of the middle turbinate, the writer advocates its "bloody" subluxation downward towards the inferior turbinate, after loosening it from its attachment by means of a special chisel. The hiatus semilunaris is then easily accessible and the frontal cavity may be irrigated.

Glogau.

THE DEAF

Their Education—Improvement of Conditions—Responsibilities and Participation of the Profession.

JOHN DUTTON WRIGHT, M. A.
DIRECTOR OF THE WRIGHT ORAL SCHOOL FOR THE DEAF
NEW YORK CITY

The aim of this department of THE LARYNGOSCOPE will be to bring to the notice of its readers from month to month, facts that may be helpful to physician and patient in dealing with the life-problems involved in deafness. Suggestions from readers will be gladly received and all questions answered to the best of our ability.

THE EDUCATIONAL NEEDS OF THE DEAF.

(Continued from the July, 1914, issue, page 693.)

We now come to Class II. Adults. Group A. Adults with hearing but slightly impaired by conditions that will yield to treatment: While at first sight it may seem that the educational phase need not be considered with these patients, yet training in lip-reading may be of considerable assistance in solving the problem. If the process of cure is likely to be somewhat prolonged and to require all the nervous energy available on the part of the patient, a great relief from nervous strain and an added contentment can be secured by acquiring some ability to assist the ear with the eye. Then, also, there is always the possibility that in time the patients may find themselves in Group B.

Group B. Adults with hearing slightly, but permanently impaired, with or without the probability of a progressive increase in deafness: For these people, the educational training of the brain to interpret language by the movements which accompany speech is a great aid. By facilitating their intercourse with people it encourages them to mingle more freely in society. This, in turn, leads them to pay more attention to what is said around them, and so gives their hearing more use. As a matter of fact, we hear with our brains. If the organ of hearing is not in perfect working order the brain must exert more effort to interpret the sounds; just as one must listen with great intentness when using a defective or faint telephone. If the brain can receive a little assistance through the eye, in supplement to the faint impressions that reach it through the ear, then there is less brain-fag, less nervous tension, and the whole bodily machine works better. It is easier to hear language than to see it, and even the slightest sounds of speech that are heard enormously help the eye to comprehend and are eagerly sought. The result, therefore, of adding the help of the eye to that of the ear is to increase the amount of use the patients make of their hearing, and curiously enough they not infrequently report that their hearing appears to have benefited from the educational training of lip-reading. The intelligent teacher will use, in giving the lessons, such a volume and pitch of voice as will exercise the hearing to the utmost, while supplementing it with sight. So that, with the eyes closed, the patient could hear the voice, but not be able to make out the words, and with ears stopped could see the words, but not quite make out their meaning, though with both ears and eyes open the sentences were readily understood. Thus the two senses are trained to work in supplementary harmony.

Group C. Adults with hearing seriously and permanently impaired: All that has been said of Group B is applicable to patients belonging to Group C, and in proportion as their situation makes social intercourse more difficult for them so much the more is the educational training a help and a comfort to them.

In three or four months ordinary persons can get a sufficient start in lip-reading to enable them to make steady progress in increasing their facility under the social conditions of every-day life without further special aid or instruction.

Unfortunately, the United States is the one great stronghold in all the world of silent, that is manual methods of educating the deaf. These silent methods are responsible for the term "deaf-mute" that is so strongly entrenched in our language, although in thousands of instances it has become a misnomer through the education of the deaf by purely oral methods. In Europe the greater part of the schools are purely oral schools, but in the United States the greater part of the schools use silent methods to a considerable extent. To be sure, they have gradually been compelled, by the arrival and persistent growth of the oral method, to adopt it in part, and call themselves "combined" schools. But, so far as the output of the schools is concerned it is not possible to combine the two methods. The pupils leave the so-called "combined" schools practically deaf-mutes, and so long as "combined" schools exist there will be need in the language for that term.

By providing a small, separate building in which the entering children could be housed, taught and cared for by speech methods, and year by year increasing the accommodations assigned to the orally taught pupils and decreasing the portion needed for the silently taught, each of the state "combined" schools could, in a period of from eight to ten years, be transformed into purely oral schools. But absolute segregation must be secured of the manually taught from the orally taught, not only in the class rooms but also in recreation, shop, dining hall and dormitory. If the modern and enlightened cottage plan were adopted by the State institutions for the deaf this much to be desired transformation would present very little difficulty.

Physicians and their organizations are always an influential factor in each State and community, and if they would steadily, year after year, exert their influence on behalf of the transformation of the State institutions for the deaf from so-called "combined" to real oral schools, they would help to hasten the arrival of the change.

Four Cases of Leeches Adhering to the Larynx. HENRI ABOULKER. *Rev. hebd. de Laryngol.* May 23, 1914.

The first patient applied because of a sudden hemorrhage from the throat and was relieved by the removal of a leech which had entered his throat while drinking at a public fountain. The leech was found adhering to the left arytenoid, but the patient had found no inconvenience from its presence either in breathing or swallowing.

In the second case, a beggar declared that he had swallowed a leech while drinking from a pond. Some hours afterwards, he developed a violent attack of suffocation for which he was sent to the hospital. The dyspnea became intense but was relieved by the removal of a large leech which was found attached to the vestibule of the larynx.

In the third case, a man complained of the loss of voice and slight dyspnea which he attributed to a leech which had entered his throat some days ago while drinking from a pool. As in the other cases, the leech was removed by forceps, the point of implantation being one of the superior vocal cords.

In the fourth case, the patient also declared that he had swallowed a leech. There was no spitting of blood or difficulty of respiration but only a slight discomfort in the throat, as from a foreign body, in the effort of swallowing. The leech could be easily seen, but while the right side of the vestibule appeared edematous, the point of attachment could not be found. SCHEPPEGRELL.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular meeting, May 27, 1914.

DR. J. HENRY GUENTZER, CHAIRMAN.

Jugular Thrombosis (Normal Ear) Complicating Cervical Adenectomy: Jugular Resection: Recovery. DR. JAMES GARFIELD DWYER.

The patient was admitted on January 31, for ordinary cervical adenectomy,—in the service of Dr. Coffin. The notes of the operation are as follows: Skin incision, four inches long, on right side of the neck. Large broken-down glands. One big gland and many smaller ones were removed.

For four days after the operation, the child continued in splendid shape, with normal temperature. Then the temperature jumped up to 106°. At the time of the operation, the child was practically exsanguinated, and they used transfusions and hypodermoclysis for five days afterwards. The case was then turned over to Dr. McKernon, and its general condition improved so far as the anemia was concerned, but the other symptoms became more pronounced and it was decided to tie off the jugular as far as possible. We went right down to the clavicle and got a healthy wall, and gradually dissected up to the foramen. The operation on the jugular was below the facial vein, and the vein was patent below. On taking the culture, we got the longest chain of streptococci I have ever seen. We gave the child autogenous vaccine made from the interior of the vein, and the child went on to complete recovery.

The case was interesting, as the thrombus did not extend into the bulb, in the situation that is the ideal one for thrombosis. We have a whole jugular vein closed up to the facial vein, and also the vein itself on being excised was put through the pathological technic and the streptococci demonstrated in the wall of the vein.

Dr. Dwyer said that this was the first case of the kind that he had ever seen.

DISCUSSION.

DR. CARTER asked Dr. Dwyer what was the usual length of the streptococcic chain; and also whether there was any connection between the length of the chain and the virulence of the organism.

DR. GUTTMAN said that if he understood the situation aright, it was an operation for suppurative glands, and that accidentally the jugular was injured and excised.

DR. DWYER: Yes, two weeks after.

DR. GUTTMAN. Did it have any connection with the ear?

DR. DWYER. It had no connection with the ear.

DR. HELLER asked if there was much breaking-down of the glands, or whether they were comparatively clean?

Dr. Dwyer said that it had always been accepted among bacteriologists that a long chain of streptococcus generally represented a virulent strain. The streptococcus longus was the virulent form; and the streptococcus brevis,—5 to 6,—was looked upon as the non-virulent form although this is only a rough way of differentiation. Streptococcus longus, when injected into rabbits, usually produces septicemia, whereas the other is innocuous. This chain, however, was the longest he had ever seen.

The deep glands were broken down; the glands around the jugular were still solid and firm. The ear was absolutely normal. The case had been referred to him from the nose and throat department, as it was thought that a mastoid operation would have to be done; but free bleeding was obtained above and below and the thrombus was take out.

Dr. Heller asked if the caseous pus was examined for streptococci.

Dr. Dwyer replied in the affirmative, and said that no streptococci were found in the pus.

Orbital Abscess with Optic Neuritis, Due to Acute Ethmoiditis in a Child; Operation; Recovery. Dr. J. H. Guentzer.

DISCUSSION.

Dr. Guttman said that twelve years ago he had reported a somewhat similar case. The antrum of Highmore was affected, and then the ethmoidal sinus, and it broke into the orbit. He believed that the pus of an ordinary ethmoiditis broke into the orbit; this caused the pressure on the orbital nerve and the optic neuritis, and by the evacuating of this abscess the whole picture cleared up.

Dr. Wilson said that he had reported a similar case some six or seven years ago, and possibly the condition is not so rare as one would imagine.

Dentigerous Cyst of Superior Maxilla. Dr. Gerhard Hutchison Cocks.

The patient, Solomon R., is 50 years old. His health has been good except for the present trouble. There is no history of venereal disease. Six months ago his face began to swell in the region of the right antrum; the teeth adjoining the antrum were tender and painful. At this time a large abscess of the palate was evacuated. There has been a discharge of pus from the tooth-root cavities since the removal of the teeth, six months ago. During the past five months there has also been a continuous discharge from the right nostril. Two weeks ago, two bicuspid tooth-roots were removed. This was followed by a foul discharge of pus from the tooth-socket, which has persisted until the present time.

When first examined, there was pus in the right nostril in the middle turbinated region, and pus coming down through the bicuspid socket into the mouth. A probe could be run up through this tract for a short distance, but failed to enter a large cavity. X-ray examination showed a cloudy antrum and a large cavity just below the antrum which involved the alveolar border. You will note that in one place the entire bony alveolar process has disappeared.

On April 29, 1914, under gas-ether narcosis, a transverse incision was made through the muco-periosteum over the canine fossa, as in the Caldwell-Luc operation. The periosteal elevator broke into an oval cavity about an inch and a quarter long, containing a thickened lining membrane and foul pus. The bony walls of this cavity were smooth. At first I thought I was dealing with the antrum, and therefore made a counter opening from the inferior meatus directly into the cavity. On more careful examination, I discovered a small opening from the roof of this cavity leading above into an unusually large antrum. As the antrum was also diseased, the two cavities were converted into one large cavity by breaking away the intervening partition, and the nasal wall was removed, both above and below the inferior turbinate bone. The muco-periosteal incision over the canine fossa was closed, and drainage and subsequent treatment carried out by the nasal route.

The diagnosis of this case is infected dentigerous cyst, with perforation into the antrum. Recovery was uneventful.

Tuberculosis of the Maxillary Antrum, with Tubercle Bacilli Present in the Washings from the Antral Cavity. DR. GERHARD HUTCHISON COCKS.

(This case is from Dr. Chappell's Clinic at the Manhattan Eye, Ear and Throat Hospital.)

The patient, Max O., a man 34 years of age, has always been subject to slight nasal obstruction, for the relief of which he states that a spur was removed from his nose twelve years ago. His family and personal history are negative.

Two years ago he developed pulmonary tuberculosis, with loss of weight, fever, and night sweats. After a few months of rest and treatment, he went back to work and has been comparatively free from constitutional symptoms since he recovered from the acute attack.

On March 15, 1914, he first began to suffer from pain and swelling of the left side of the face over the antral region. On April 13, he came to the Manhattan Hospital for treatment. Transillumination demonstrated a dark left antrum. X-ray examination showed a very cloudy antrum on the affected side, with slight cloudiness of the opposite antrum. The other sinuses were comparatively clear. The left antrum was perforated through the inferior meatus. The washings contained large, tenacious clumps of muco-pus of a peculiar orange-yellow color. Dr. Dwyer, the hospital pathologist, reported that the antral washings contained large numbers of tubercle bacilli and many secondary organisms.

The patient has returned to the clinic at intervals during the past six weeks to have the antral irrigations continued. The discharge from the antrum is clearing up, and his condition is improving. At the present time, his chest gives the signs of an arrested apical infiltration. He states that the examination of his sputum has always been negative to tubercle bacilli.

The method employed by Dr. Dwyer to determine the presence of tubercle bacilli in the washings from the antrum was as follows: The material was first subjected to antiformin, which does away with all organisms except the acid-fast group. There are several acid-fast organisms which were excluded, as follows: 1. Leprosy bacillus. This has never been isolated free from tissues. 2. The Timothy hay-bacillus and the smega bacillus, if present, would have been decolorized by the stain used (Pappenheim's). 3. Acid-fast bacilli are sometimes found in distilled water. This group was excluded by using water which was distilled twice.

The patient is being treated in the day camp on the roof of the Vanderbilt Clinic, where he is receiving tuberculin injections. The discharge from the antrum is now very scant and the antral lesion is apparently clearing up rapidly.

DISCUSSION.

DR. FREUDENTHAL, referring to the case of the dentigerous cyst, said that he had seen two similar cases. In the first instance, the patient was a lady from Chicago. She had been suffering from a foul-smelling discharge from the nose for eight years; she had been treated by a dentist, then operated on by a laryngologist, but with no improvement.

On examining the antrum he had found the same conditions as described by Dr. Cocks,—one closed cavity and another big cavity, which was really the antrum. The cyst was removed, and the patient got well in two weeks. There had been a great deal of pus in the antrum.

Referring to the case of tuberculosis of the antrum, Dr. Freudenthal said that he had seen many cases of tuberculosis with a purulent condition of the nose, and he had often wished to make a careful examination of all these cases for tuberculosis. He hoped that some one would make such a study, for he was convinced that many cases of empyema of the frontal and other sinuses are due to this condition.

DR. COCKS said that the patient with tuberculosis of the antrum stated that his sputum had been examined several times for the tubercle bacillus, with negative result. It was therefore likely that the tubercle bacilli came from the throat or naso-pharynx.

DR. FREUDENTHAL said that a patient had come to the clinic the previous afternoon complaining of hoarseness only; there was no pain, no cough. Examination showed a very unusual condition in the larynx, which seemed of interest in connection with the paper he was to read. There was a big mass in the larynx, at the anterior commissure, closing up that part, and above that another mass with an edematous or cystic appearance. He had not thought of tuberculosis in this case, but to make sure, the chest was examined, and sure enough a lesion was found in the lungs. He did not need to describe the case, as anyone who was interested could examine the patient.

DR. DANZIGER said that both of the two masses which he saw appeared to originate from the posterior surface of the anterior wall and did not impress him as being tubercular, but looked more like papillomata. Tuberculomata are of firmer consistency and are hardly ever found in this location; their preferred location is in the inter-arytenoid fold or the vocal cords. The fact that the patient had no pain did not speak against tuberculosis, as the epiglottis was free. The masses were absolutely spherical, almost pedunculated, another point which spoke against their being tubercular.

DR. FREUDENTHAL said that he intended to remove the masses and try to get a true diagnosis.

The Management of Laryngeal Tuberculosis in Sanatoria and Private Practice. DR. WOLFF FREUDENTHAL.

The essayist stated that it was not his intention to go into the details of the etiology of pulmonary tuberculosis. As everyone knows, it is prevalent to a dreadful degree, and in spite of the active,—often rational, often nonsensical—crusade against it, it has decreased to only a slight extent. As a result of a large number of post-mortem examinations, Naegeli stated that in 97 per cent of all adults some kind of tuberculous lesion was found, and concluded that "every grown person has tuberculosis." (*Virchow's Archiv., Bd. 160, 1900*). This tends to show that an occasional infection is not dangerous to the average person. To those exposed, the danger lies in the constitutional weakness of the individual, or in close and prolonged contact with tuberculous patients.

Laryngeal tuberculosis is the most severe and dangerous involvement of the disease. Few patients in any condition demand relief more earnestly or spur the physician to more effort, or are a source of greater anxiety. Indeed, many pactitioners still believe that tuberculosis of the larynx is an incurable disease. A physician in charge of a large hospital for tuberculous cases said recently: "The patient is lost as soon as the larynx becomes involved." Statistics, however, show the fallacy of this belief. W. Jobson Horne, of London, who has conducted extensive clinical and pathological research, found that 97 per cent of cases of phthisis at one time or another in the course of the disease experienced symptoms referable to the larynx, and claimed that a routine examination of the larynx in persons suffering from symptoms suggestive of early pulmonary disease would often enable a diagnosis of phthisis to be made at a time when the stethoscope yields no evidence, and that is at the time when the physician can be of the greatest service to his patient.

Whether or not these statistics are accepted, all men of experience will agree that the larynx is affected in an extraordinary large percentage of cases, and it is equally obvious that many of them are cured, with or without a diagnosis and with or without treatment. It is equally certain that a certain proportion of the milder cases get well simply by being placed in proper hygienic surroundings.

The writer then dwelt upon the treatment of these cases in a well-equipped sanatorium. It should be an established rule to examine thoroughly the upper air tract of every case that enters a sanatorium, whether the patient complains or not. If this is done as a routine procedure, a number of pathological conditions will be found, the correction of which will have a decidedly beneficial effect, not only locally, but also as regards the pulmonary conditions. Many of these patients suffer from an atrophic catarrh of the nose or from milder form of this, rhinitis sicca. The mucous membrane of the nose is dried out or covered with scabs and crusts,—the air spaces are large enough, but the air itself cannot be *assimilated*. The characteristic hacking cough described in all the text-books as a premonitory or incipient stage of pulmonary tuberculosis often has its source in the pharynx, being caused by the dry secretions of atrophic rhinitis getting into this region from the nose, or by a post-nasal catarrh. If these conditions are treated according to the customary methods, the cough will be eliminated, and in this way much can be done toward arresting the disease in the beginning.

(*To be continued.*)

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

Regular Meeting, May 19, 1914.

Dr. E. B. Gleason, Chairman.

DISCUSSION OF DR. HILL'S PAPER.

(Continued from page 708.)

Dr. Gwathmey (closing): With oil-ether constant vigilance is the watch-word. Be on guard to keep an open air way. Danger signals, when present, demand some urgent remedies as in other methods of anesthesia.

Dr. Grayson: I am not irrevocably committeed to chloroform; I always use anesthetic adapted to condition, and never use chloroform when objections are raised by the physician or by the family. Always feel responsible for anesthetic and results and always have it given by resident under my constant supervision.

Dr. Mueller has never used oil-ether; deferring until he had heard further from Dr. Gwathmey. Intra-tracheal anesthesia especially applicable in head and neck surgery. Operations on chest are rare. Strongly objects to interne administering ether. Hospitals have no right to train young men at expense of patients and all should unite in forcing hospitals to employ trained anesthetists.

SYMPOSIUM ON BACTERIN TREATMENT.

The Use of Bacterin in the Treatment of Diseases of the Nose and Throat. Dr. Fielding O. Lewis, Philadelphia.

Published in full in the July, 1914, issue of The Laryngoscope, *p. 673.*

Vaccine Treatment in Accessory Sinus Suppuration. Dr. Ross Hall Skillern, Philadelphia.

Published in full in the July, 1914, issue of The Laryngoscope, *p. 676.*

Bacterins in the Treatment of Diseases of the Ear. Dr. George M. Coates, Philadelphia.

Published in full in the July, 1914, issue of The Laryngoscope, *p. 677.*

DISCUSSIONS:

Dr. Robert F. Ridpath thinks that the beginning of therapy by bacterins will have to be thought of by bringing before our memory the origin and use of vaccines or original vaccination of cow-pox by Jenner. He started the thory and treatment, although somewhat different in technic and perhaps dissimilar in other details, but nevertheless due to his forethought and experimentation and his finding that by innoculating with cow-pox we have a preventative of small-pox. From this time onward we have had a gradual but steady succession of vaccines, antitoxines, phytoctogenes, bacterins, etc., for combating diseases in the various forms and manifestations.

Dr. Ridpath's experience although somewhat recent and small in number, nevertheless shows results obtained which to his knowledge could not have resulted from any other medication. His cases comprise: Four cases of acute maxillary sinusitis; one case of frontal sinusitis; two cases of chronic otitis media; one case of acute otitis media. With the exception of one acute case of maxillary sinusitis and the two cases of otitis media, all of the cases were not only improved but cured.

In this case, an acute one, Mr. C., age 46, injection not only did no good but seemed to aggravate the condition, giving a decidedly bad reaction inside of twelve hours; an almost continuous chill; fever of 104° lasting ten hours; delirium and tremendous prostration, with general increase of sinus symptoms and discharge. These symptoms were not relieved by washing out of sinus.

Like the many cases which Dr. Skillern has quoted in his paper all of the cured cases seemed to be markedly better from initial dose or first two or three injections, and from then on symptoms and discharge decreased.

As Dr. Ridpath has had several complaints of injection producing sore arms with decided swelling sometimes he has lately injected bacterins intermuscular instead of subcutaneous.

He thoroughly agrees with Dr. Skillern that bacterin treatment should follow all radical operations. He was very glad to hear of the use of bacterins in ozena, which Dr. Lewis mentioned, and felt that all should work to a common end in this supposedly incurable condition to find a remedy that will do some good.

Dr. Lewis speaks of reaction following injection. It has been Dr. Ridpath's experience, with one exception, that the more decidedly negative the reaction the more benefit he would have from his injections.

Just as antitoxin for diphtheria was formerly given as last resort, now bacterins are given as last resort, and equally so that antitoxin for diphtheria is now given first, bacterin should, and he predicts in the future will be given first instead of last and the sooner general practitioners are educated to this fact the fewer radical operations, with their long-drawn out after-treatment will have to be performed. Even if by bacterin treatment only a few cases of an otherwise incurable condition are cured, Dr. Ridpath thinks all will agree that it is worth trying.

Dr. Ridpath thinks it would be a proper procedure always to have a culture made of the discharge to determine the infecting organisms before starting injections of bacterin, haphazard, without knowledge of particular organisms causing it, as otherwise failure may take place and treatment receive a black mark when it would be our own fault by not instituting or injecting the proper bacterins.

Dr. Leslie Frank Mulford: In Dr. Coates' service at Pennsylvania Hospital Sheman's stock vaccines have been used by subcutaneous method in twelve cases, no reaction. In two cases severe cellulitis. Autogenous polyvalent vaccine (Sherman) used and both improved promptly All injections in same site in spite of hyperemia. When no results obtained dose always increased to 2 ccm. Dr. Mulford referred to case of infected knee, cured with Sherman gonococcic vaccines. When Dr. Mosher was dangerously ill with pneumonia prompt administration of stock vaccines he believes hastened his recovery.

Dr. Geo. W. Mackenzie said he agreed with Dr. Skillern relative to the use of vaccines in acute cases; in 80 to 95 per cent marked improvement or recovery; results often brilliant. Much disappointed with use of vaccines in chronic cases. Experience limited to thirty or forty cases; some improved, but hardly a perfect result in any one of them. Believes better results can be obtained in combination with operative or mechanical treatment. He had a case of virulent streptococci infection of middle ear; labyrinth destruction, operation; erysipelas; meningeal symptoms; delirium. It was a desperate case; he used phylacogens; patient cured. He had another case of fracture of skull; inner ear destroyed; brain involvement; operation; brain drained; bad breathing; low pulse; desperate; brilliant result with phylacogens. He believes that many acute cases cited cured with vaccines might be cured without them. A more intelligent understanding relative to the value of vaccines can be obtained by first treating a series of cases by older methods, another by no other than vaccines or bacterins, and still another by combined methods. Vaccine therapy not similar to method introduced by Jenner. Latter used attenuated small-pox or cow-pox and produced disease like small-pox.

Dr. E. B. Gleason referred to disagreeable local and constitutional symptoms following use of vaccines. Another weak point is that in acute cases of all infections there is a remarkable tendency to get well.

Dr. Samuel P. Stout has recently employed serobacterins with success. Noting but little local or constitutional reaction; the doctor is opposed to phylacogens, patients often becoming desperately ill.

Dr. Louis J. Burns suffered from antrum trouble himself and was miserable. Instead of A. used one-half of B.; chill, elevation of temperature, reaction decided; tenderness gradually disappeared, no recurrence. In eighteen nasal cases he used a bacterin immediately; then in three days one-half contents of syringe (Mulford) B., in four days another half of B. In twelve cases pronounced results. In two acute cases no results. Two chronic cases no results. Best results obtained with elevated temperature, 100.3°, 101°, then went to C. and no rise in temperature. To get good results one must get negative phase. With subcutaneous injections, some reaction in a few cases. No bad results with deep intramuscular injections in inter-scapular region. Of eighteen cases, eight are one year old with no return of symptoms. In one acute case there was pronounced recurrence of symptoms, probably due to caries of tooth in antrum. Ear cases of purulent otitis media at St. Christopher's Hospital; good results in five out of seven. The doctor does not depend absolutely on bacterins but combines with internal and local or operative treatment, therefore deductions must be made. Used stock vaccines in all cases.

Dr. William A. Hitschler said some of his results were brilliant, others more or less disappointing.

Dr. G. N. Illman said bacterins were first used eight or ten years ago in old bone lesions. In 1906, bacterins were first used in chronic sinus conditions and one year later Dr. S. MacCuen Smith employed them in several antrum cases following operation. Favorable results can only be obtained with good circulation, free and open drainage and live granulations. Useless waste of time to use bacterins in closed cavities in fetid condition. A standing order at Samaritan Hospital to use pneumo-bacterins at earliest moment in all cases of lobar pneumonia. Reaction at point of injection argument in favor of deep injections. In regard to commercial and autogenous vaccines there is no question regarding the superiority of the latter. Three strains are all sufficient. Phylocogens have twenty-two strains. Negative phase may be desirable but not the old-time negative phase following use of phylocogens.

Dr. Herbert M. Goddard said he had used eight injections of stock vaccines in a case of ozena; patient examined one month later, no improvement. The doctor emphasized the importance of keeping stock vaccines at even temperature. Thus more favorable results are obtained in office-practice because hospitals usually fail to provide dispensaries with necessary equipment.

Diathermo-kinesiphony or the Auditory Re-education by Means of heat. A. Maurice. *Rev. hebd. de Laryngol.*, May 16, 1914.

Diathermo-kinesiphony is described by Maurice as a combination of thermo-penetration or diathermy combined with auditory reeducation.

Diathermy is a means of applying currents of high frequency which the author applied by means of an apparatus adapted from the apparatus described by Arsonval about twenty years ago. The current is applied by means of large electrodes which permit of great penetration of heat, but which allow at the same time the passage of sonorous vibrations, the electrodes being applied to the ears on each side. A current from 1500 to 1800 milliamperes is allowed to pass for five minutes, then without stopping the high frequency current, special phone receivers are applied to the ear, the sonorous sensations of which are applied directly to the ear.

Diathermy possesses a triple action—revulsive, the relief of congestion and analgesic, while phonoid massage has a trophic effect, the relief of congestion, besides a sedative and mobilizing action. In view of this, the author believes that a combination of these two methods is especially effective.

This treatment is indicated in cases where there are subjective noises and recurrent pains, in serous otitis as well as subacute catarrhal cicatricial, sclerotic and chronic otitis media. Sclerotic otitis media are benefited only to the extent of diminishing subjective noises. Scheppegrell.

Jos. W. Gleitsmann

IN MEMORIAM.

Joseph William Gleitsmann was born July 22nd, 1841, at Bamberg, Germany. His father, also a physician, was of a prosperous and influential family. The subject of this memorial received his early education at his birthplace and at Eichstaedt and studied medicine at Wortzburg, Munich, Berlin and Vienna, taking the degree of M. D. at Wurtzburg, in 1865, and acting as interne at the city hospital at Bamberg. Later he entered the Medical Corps of the German Army and as Military Surgeon in the war with Austria in 1866, acquitted himself with distinction, receiving from the Emperor at the close of the campaign the order of the Iron Cross. His military service was continued throughout the Franco-Prussian War in 1870, when he again showed marked ability and again received a medal of honor. At the close of the war he accepted a position as ship's surgeon and made a number of interesting voyages. Following this he came to the United States, in the early seventies, and having taken up the specialty of diseases of the throat and lungs, settled in Asheville, North Carolina, where he established a sanitarium.

In the early eighties he came to New York and thereafter made that city his home, speedily establishing himself as a specialist of unusual merit and associating himself with leading medical societies and institutions. While at Asheville, in 1880, he was elected a Fellow of the American Laryngological Association. He had already been elected to the Medical and Chirurgical Society of Maryland. After making his residence in New York he became a member of the New York Academy of Medicine, the New York County and State Medical Associations, the Medical Association of Greater New York and the German Medical Society.

Dr. Gleitsmann was elected vice-president of the American Laryngological Association in 1901, and its president in 1905, presiding over an unusually successful meeting held at Niagara Falls In 1885 he was elected Professor of Laryngology and Rhinology at the New York Polyclinic Hospital and Medical School, a position which he held for many years with distinction to himself, and credit to the school. He was also Senior Laryngologist and Otologist to the German Dispensary and Laryngologist and Otologist to the German Hospital.

As will be seen from the appended bibliography, Dr. Gleitsmann was, throughout his career, a frequent contributor to the literature of his department. His articles were always well in advance of the time, scholarly and scientific. His addresses were also of a high order of excellence. During the earlier period of his practice he wrote mainly upon subjects connected with tuberculosis, but soon extended the scope of his studies until they covered the whole field of laryngology.

In the department of original invention he showed much ingenuity, his cutting laryngeal dilator, for example, being quite different in design from anything that had preceded it and admirably adapted to its purpose.

Dr. Gleitsmann participated in several International Congresses, among them those at Berlin in 1890, Moscow in 1897 and Buda Pesth in 1911. Upon the latter occasion he was appointed a member of the Executive Committee of the International Congress of Laryngology. Among the German Medical Institutions of New York he maintained a high position. He was an honored member of the Liederkranz and of other German societies and for many years a Trustee of the German Medical Society of New York In this capacity he shared the responsibility of caring for the funds devoted to fellow members in distress. No official report was ever required but it is said of him by his fellow members that he carried out the duties of the position with rare tact, and that he was always ready to extend the kindliest sympathy and the wisest advice.

Outside of medicine, Dr. Gleitsmann was a scholar, a man of extensive reading and of considerable appreciation of art. Above all recreations he was an intense lover of nature. His grand passion in this direction was mountaineering and there were few places in the Swiss Alps or the Australian Tyrol with which he was not familiar. His ascents were of the most famous; they included the Matterhorn, Mt. Blanc, Ortler and many others. His knowledge of Europe in general made him an invaluable traveling companion while the brightness and geniality of his disposition and the kindness and generosity of his nature caused him to be a most enjoyable one, as the writer, from many delightful experiences had ample opportunity to prove. But as a companion of travel so he was in all the relations of life. Earnest and thorough in all that he undertook, kind and generous to a fault, refined, scholarly, accomplished; a gentleman by nature and at heart, a loving and loyal friend.

D. Bryson Delavan.

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to The Laryngoscope.)

ORAL COMPLICATIONS OF THE EXANTHEMATA.*

Dr. Charles R. C. Borden, Boston.

At the Ninth International Otological Congress in August, 1912, the writer presented a paper based upon a study of the aural conditions found in 451 autopsies after death from diphtheria, scarlet fever and measles. The following paper is practically a continuation of that article and is based largely upon the figures and facts given at that time. The writer wishes to state further that what he is about to say refers entirely to aural complications of the exanthemata and not to aural diseases in general. Also, that the symptoms and treatment given refer only to severe cases often seen in hospital practice and not to the mild cases which are the variety usually seen in private practice.

Writers upon this subject state that aural complications in the exanthemata occur in from 5 to 44 per cent of the clinical cases, depending upon the particular disease present. In the fatal cases we find this percentage greatly increased. In the autopsy reports previously mentioned, it was 82 per cent in diphtheria, 91 per cent in scarlet fever, and 100 per cent in measles. Thus we find aural complications to be very decidedly important factor in this special class of diseases.

We should naturally expect unrecognized and untreated middle-ear inflammation or mastoiditis to go on to meningitis, brain abscess and jugular thrombosis. In this respect the autopsy records are disappointing. There were but four cases of septic meningitis (not necessarily of middle-ear origin), but one case of infection of the jugular vein and not a single brain abscess. Judging from this extremely small number of serious complications, acute middle-ear infection and mastoiditis are not as important as we have supposed them to be.

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*Read at the twentieth annual meeting of the American Laryngological, Rhinological and Otological Society, Atlantic City, June 20, 1914.

If meningitis, brain abscess and jugular thrombosis do not often occur from diseased conditions of the aural cavities, complications in the heart, pleura, joints and kidneys co-exist with startling frequency. Is there any evidence to prove that inflammation in one organ is in any way dependent upon infection in another? The position of the tonsil is well established in this respect and we know it is frequently the source of infection in other organs. Why, then, may not the middle ear occupy exactly the same position and be the primary source of infection in many of the complications in the various organs which are so frequently affected? To establish such a theory we need only to turn to the clinical cases in the exanthemata and study the symptoms as they present themselves in many instances.

The writer does not wish to be misunderstood in the matter. He does not claim or believe that all complications in the heart, pleura, lungs, joints, etc., arise from middle-ear disease. Such a position would be absurd. He does believe, however, that a certain number of such complications are of middle-ear origin and the ear may be justly accused of being a possible source of infection until careful examination has proved it free from suspicion.

The etiology of the complications is too well known to need further discussion in so far as extention from the nose and naso-pharynx is concerned. It frequently happens, however, that in scarlet fever both middle ear and mastoid cells become infected long after the acute inflammatory reactions in the nose and naso-pharynx have subsided. In certain other cases, also, it appears that the mastoid becomes infected without symptoms of inflammation in the middle ear. Such being the case, is it not possible to have both middle-ear and mastoid inflammation as a result of primary infection from the blood stream and not secondary to an inflammation in the nose or naso-pharynx? In several of the autopsy records, notes appear which state that the inflammation in the middle ear or mastoid appears to be primary and not secondary to adjacent organs. This is an interesting phase of the situation but the writer has neither the time nor necessary facts at hand to scientifically prove a theory of primary infection.

The onset of aural complications is fairly constant in measles. It usually develops with the active inflammation in the nose and throat, and patients who escape during this period usually remain free from the complications throughout the disease. On the other hand, it may be said of scarlet fever that aural complications of any degree of severity may arise at any time from the first day of the acute symptoms to the last day of convalescence. No special rule may be given as to the onset of the complications of diphtheria. On the whole, they occur late rather than early in this disease, but like scarlet fever they may arise at any time during the illness of the patient.

In mild cases, symptoms of aural complications in the exanthemata are much the same as from other common causes. They often appear without apparent discomfort to the patient and usually do not complicate the original disease to any extent. In severe cases, where great prostration is present or considerable elevation of temperature develops, the importance of an aural complication increases ten fold. Judging from my own experience it is not the symptoms present which confuse our diagnosis, but those which are absent. Those present are quickly and easily recognized; but not infrequently important symptoms which we are taught to believe exist in any typical case of either acute otitis media or mastoiditis are entirely absent. In this respect aural complications of the exanthemata present their peculiarities to the greatest extent.

Age is naturally an important factor. Generally speaking, the younger the patient the greater the susceptibility to aural complication. In severe attacks of measles, adults are nearly as susceptible to middle-ear infection as young children and they are even more liable to mastoiditis, if the middle ear becomes infected. Comparatively few cases of aural complications develop in the clinical cases of diphtheria and I cannot recall having seen one case of mastoiditis in an adult in this disease. Judging from the autopsy records, however, I believe they are not as uncommon in severe cases as we suppose them to be.

Pain as a symptom is most unreliable. There seems to be considerable difference of opinion on this subject among different writers. Some claim pain is constant and distressing and others that it is often absent. My experience is that it is frequently absent and that when it occurs it is by no means as great as that encountered from grip, infectious colds, etc.

Temperature is naturally an important symptom and is doubtless the most constant one. It has a wide range, however, and is not by any means to be entirely depended upon. The onset is usually sudden, not with a gradual rise. The drop is equally sudden after paracentesis or spontaneous rupture, but may be delayed some hours before it actually occurs. That is to say, even after paracentesis or spontaneous rupture, the temperature may occasionally remain elevated for twenty-four hours or even longer before a change takes place. When the temperature begins to fall, however, if free drainage has been established, the drop is sudden and not a gradual remission.

Temperature is by no means always present in serious cases. I have operated upon a number of cases of mastoiditis in which there was a large amount of free pus, where the temperature never exceeded 100 degrees. I recall one case in particular wherein the kidneys showed marked inactivity as well as considerable inflammation in both middle ear and mastoid. The temperature in this case was but 99.8 degrees. In this instance, when the mastoid was opened, the kidneys promptly resumed their function. It is difficult to imagine a general systemic infection of middle-ear origin without some degree of elevated temperature. Such a condition is possible, however, and appears to be one of the peculiarities of the exanthemata.

The appearance of the drum membrane differs somewhat in the contagious diseases from similar conditions from other causes. The color is usually less of a fiery red and is more of a grayish pink. At times, even with considerable bulging, it is a slate blue or lead color. The drum membrane when bulging is often considerably thicker than usual and frequently gives a distinct porky sensation when performing paracentesis. This infiltration doubtless accounts for the difference in color as well as the absence of pain in many cases.

In scarlet fever and measles there is seldom any difficulty in diagnosis. The bulging in either of these diseases is extreme. It is in diphtheria wherein the difficulty arises. Aural inflammation in this particular disease is much less active, and, at times, is exceedingly difficult to recognize. The most difficult diagnoses I have ever been called upon to make occurred in complications of the ear in conjunction with diphtheria. The reason for this will be explained in a measure when we consider the question of discharge.

The most important symptom to be noted in the appearance of the drum membrane is the formation of so-called nipples.

They seldom appear until perforation has taken place and in my experience most often occur in the anterior half of the membrane. The condition is occasionally referred to as a "bleb." This is a mistake, as the latter is an entirely different anatomical structure. A bleb is a blister-like formation due to fluid or air separating two layers of the drum membrane. Blebs are not infrequently seen in measles and often give a decided "pop" on being opened, due to the sudden escape of confined air or gas. A true nipple, or nipple perforation, involves the entire thickness of the drum and is a sort of hernia or area of weakness in that structure giving way to pressure. The principal drainage point from the middle ear may, or may not, be through the nipple. In my experience such perforations nearly always occur at points not favorable to drainage, being too high above the floor of the middle ear. Unless great care is exercised, more or less of the entire nipple will slough away leaving a large and permanent opening. Nipples may be expected in both scarlet fever and measles when the amount of discharge is great. The persistence of a nipple perforation with an over-active discharge is one of the most valuable symptoms I know, upon which to base the necessity of a mastoid operation.

Tenderness over the mastoid process is a most unreliable symptom. Certain writers have laid great stress upon it and appear to have considerable faith in it as a diagnostic guide. The mastoid cavity is frequently filled with pus and granulations without any suspicion of tenderness being present. It is at best a treacherous symptom and is to be viewed with suspicion whenever present, regardless of whether the tender area is over the tip, antrum, or other part of the mastoid process. This is particularly true if ice or cold in any form has been applied long enough to overcome vascular engorgement. If present, in conjunction with other prominent symptoms, it naturally strengthens the diagnosis. It must never be assumed, however, that the absence of this symptom rules out the possibility of mastoiditis. This mistake is often made in the contagious diseases and is a frequent cause for impaired hearing if not the actual loss of life.

The color and character of the discharge varies in the different exanthemata. At the onset they are often much the same, but after a day or so usually assume their special characteristics. The discharge from a scarlet fever ear is usually the creamy white of streptococcus pus. Occasionally the yellowish discharge of staphylococcus is encountered. Pus from pneumococcus bacilli is usually of a dirty, light-brown color and is tremendous in amount. In measles, the appearance of the pus is usually of a light-brown color lacking the creamy nature of the pus seen in scarlet fever. What germ predominates in the average measles case, I am unable to state. In diphtheria, the aural discharge usually shows K. L. bacilli but never as a pure culture. It is mixed with other germs; no special one predominating. Aural discharges in diphtheria are not as active or as persistent as those in scarlet fever or measles, but share with them the ability to convey infection. Aural discharges from all three diseases possess the ability to convey infection to a marked degree. Thus no patient can be wholly free from the danger of spreading contagion when an aural discharge is present.

The amount and character of the discharge is of extreme importance and the nature of the germ predominating will influence the case to a marked extent. The quantity of the discharge is one of the most important factors in an aural inflammation. While it is but an indication or by-product of an inflammatory process, it is nevertheless the most prominent symptom with which we have to deal. By its presence and activity, we have our best demonstration of the phenomena taking place within the middle ear and upon its physical characteristics we must often make our diagnosis.

First, when fluid is secreted it must have proper drainage. Secondly, the drainage must be sufficiently free, not only to overcome the dangers of absorption, but to prevent excessive pressure upon the membrane. The first condition is very well understood and drainage sufficient to overcome absorption of toxines is an every-day practice. The second condition is apparently not so well understood and is still less properly treated.

Let us forget for the moment the matter of septic absorption from the middle ear or mastoid and its attendant dangers, and consider the matter of free drainage from a purely mechanical standpoint.

The pressure necessary to force even a thin watery secretion through a minute opening in the drum is sufficient to considerably distend that delicate structure. As the amount of the secretion becomes greater and increases in its density, both factors act to increase the distension. Thus the ability of the drum membrane to withstand such a pressure is the only factor of safety afforded the future of the hearing apparatus.

Usually, in young children, the first symptoms of mastoiditis to attract attention is a bulging forward of the auricle due to edema over the mastoid process. It occurs suddenly, often being present in the morning when there was no suspicion of it the previous evening. The swelling is due to free pus under the periosteum or to a deep cellulitis of all the structures covering the mastoid. As a diagnostic symptom it is much the same as tenderness. It is a positive symptom and calls for operation when present, but its absence means little or nothing. In my opinion, edema over the mastoid usually occurs only when a fistula is established from the mastoid cavity outward to the external tissues. It is Nature's method of relieving acute mastoiditis and its very occurrence in a measure is proof we have failed to diagnose an important element in our case. Edema over the mastoid is analagous to an abscess in any other part of the body which is allowed to burst itself. Good surgery does not allow an abscess cavity to burst itself in other parts of the body. Why should this location differ in any way? Many cases of active mastoiditis show no evidence of edema, hence its absence in a case means comparatively nothing in diagnosis.

The most striking variation between the three diseases is the appearance and characteristics of the pus found in mastoiditis at autopsies in diphtheria. In scarlet fever and measles, it is of the ordinary variety and is usually copious in amount. In diphtheria, it is repeatedly described as green, yellowish green, brownish green, or other colors bordering upon a greenish hue; and as thick, tenacious, gummy, gelatinous or semi-solid, etc. The marked peculiarity of the discharge may largely account for the lack of active symptoms which seem to be peculiar to aural complications of diphtheria.

Before taking up the matter of treatment, we naturally come to the question of prevention of aural complications in the contagious diseases. As the infection reaches the middle ear by way of the Eustachian tube, and the nose and naso-pharynx are the seat of active inflammations, they would seem to be the structures to which preventive measures would be aimed. This is a natural conclusion to reach and would be an entirely logical one had not experience and practice proved it to be otherwise. Some years ago in the Boston City Hospital it was a routine practice to irrigate the nose and naso-pharynx one or more times daily with an alkaline solution in all contagious cases wherein there was an over-active secretion in the nose or naso-pharynx. The result was to greatly increase the proportion of aural complications. Such a procedure is never practiced at the present time and the number of cases of middle-ear inflammation and mastoiditis is materially decreased. Irrigation of the nose and nasopharynx is, in the opinion of the physicians and aurists of this institution, absolutely contra-indicated under any circumstances whatsoever. This includes all sprays and douches as well as actual irrigation.

There is but one true method of preventing aural complications, i. e., through removal of adenoid tissue before the patient contracts a contagious disease. The proof of this statement is quite apparent in the Boston City Hospital by the marked decrease in the aural complications over a few years ago when the removal of adenoids was not as common a procedure as it is at the present time. Other than removing adenoid tissue prior to the attack of the contagious disease, there is no method of prevention of aural complications which accomplishes a result and offsets the risk it involves of developing in the ear precisely what it was intended to prevent.

In the exanthemata, aural complications are usually well established before attention is called to them. Thus, the treatment is almost entirely surgical. In general, it is the same as in the ordinary aural practice with one or two exceptions. The important difference is the low vitality of the patient and the increased virulence of the infection. We may rely less upon nature in such cases than at any other time. Middle-ear inflammation which might be aborted under other circumstances fails to respond to the usual mode of treatment in the contagious diseases. The ordinary methods of treatment also are not available. If the drum membrane is found to be red and inflamed, prompt paracentesis is indicated. Hot irrigations seldom accomplish the desired results. Inflation of the middle ear and post-nasal applications not only avail nothing, but decidedly increase the inflammatory process. The inhalation of hot steam is a safe procedure but usually fails to give relief. Free paracentesis is the only accepted method of procedure and should not be delayed.

The writer is a firm believer in hot irrigations as long as redness and bulging are present after free drainage is established. As the discharge becomes less in amount, it is often better to discontinue the irrigation and substitute warm peroxid. This treatment is especially beneficial if the discharge becomes very thick in its density. Aurists who advise wicking the canal or placing plugs of cotton in that position should take great care to instruct the nurse or mother not to force them tightly into the canal. Even a moderately tight packing, of any material, increases the tension of the fluid within the drum and decidedly interferes with the free flow of the discharge. This is a common fault in the treatment of aural inflammations and one which is more harmful than is commonly supposed.

If the discharge suddenly ceases when it has been very profuse suspicion should be directed to the mastoid at once. This is not an unusual occurrence and is a dangerous symptom. In such a case the drum is often distended, but free paracentesis fails to establish a free flow of the discharge. This symptom signifies that the active seat of the infection is in the mastoid cells and not the middle ear. A swelling of the mucosa interferes with the free passage from the mastoid to the middle ear. Sufficient pus finds its way from the mastoid to slowly fill the middle ear and cause distension, but the flow is not sufficient in amount to keep the opening in the drum patulous. Hence paracentesis, no matter how free or how often, fails to establish the necessary drainage for any length of time. In such a case the mastoid frequently presents none of the typical symptoms of that disease, but should its cortex be opened it would be found to be in an active state of inflammation and filled with free pus. This is a type of case which eventually bursts itself through the cortex. When several paracenteses have failed to overcome an aural complication and the drum membrane shows signs of overdistension from any cause, the mastoid operation is seriously to be considered regardless of whether temperature, tenderness, edema, swelling of the posterior walls of the canal, etc., are present or absent. When typical symptoms of mastoidities are present, the mastoid operation should promptly be performed. Ice bags or other methods of applying cold are contra-indicated if there is edema over the mastoid process, marked indications of serious complications in the heart, joints, pleurae, kidneys, etc., or if the temperature remains elevated to a dangerous degree in spite of free paracentesis.

Nipple perforations require prompt and vigorous treatment from the first. The ordinary incision frequently fails to relieve the condition regardless of the number of attempts in that direction.

The writer has occasionally had excellent results from two incisions at right angles to each other with the apex of the nipple as the center of the incisions. This double incision is much more apt to remain open than a single one. I am more and more inclined, however, to open the mastoid whenever a large nipple perforation persists for any length of time, together with an over-active discharge which does not respond to less radical treatment. This is by all means the safest procedure and one which produces the most excellent results. The tension on the drum-membrane quickly subsides, the middle ear becomes dry in a short period of time, and the hearing apparatus is saved from a very possible impaired function.

Whenever the middle ear is suspected of being the primary source of infection in complications of a serious nature and free paracentesis has failed to control the aural inflammation, the mastoid should be opened at once. This is particularly true if a temporary relief is obtained from paracentesis.

In this respect, I believe, we are justified in opening the mastoid with a more meager collection of symptoms at hand than in any other situation with which we have to deal.

Up to the present time we have had but two methods of treating aural complications—hot irrigations and paracentesis of the drum membrane. Both methods have often proved inadequate and have resulted in thousands of cases of impaired hearing, if not actual loss of life. So far as I know, there is but one other method at our disposal. The mastoid operation in the hands of a skillful aurist is comparatively a simple matter and one which will speedily and safely overcome most aural complications if performed within a reasonable length of time. As soon as drainage has been established through the mastoid wound, the delicate hearing apparatus of the middle ear is largely relieved of the strain in every way and soon returns to its normal condition. All possibility of septic absorption from both middle ear and mastoid is removed and this danger to the patient's life, or well-being, is also eliminated. If one is to err at all in the matter of performing a doubtful mastoid operation, by all means let it be on the side of safety. To open a normal mastoid is no great error but to fail to open one which is diseased may easily result in the loss of the patient's life.

The time is not far distant when draining an abscess cavity through a pin-hole perforation, in an important structure, will be considered poor aural surgery.

520 Commonwealth Avenue.

THE ETIOLOGY, DIAGNOSIS AND TREATMENT OF THE AURAL COMPLICATIONS OF THE EXANTHEMATA.*

DR. STANTON A. FRIEDBERG, Chicago.

A statement found in practically all of the text-books on otology and upon which peculiar emphasis is laid, is the rapidity with which tissue destruction and profound changes in the hearing faculty occurs in certain of the exanthemata. We read also that a fairly large percentage of the chronic suppurative conditions in the ear may be traced to some antecedent infectious disease as their starting point.

By reason of this teaching which has been handed down from generation to generation many otologists have a feeling of apprehension when called upon to treat the ear in these diseases. That this is justified is in a measure true. The reason for it is that in private practice the attending physician is usually too willing to trust to nature to overcome the aural complications and the otologist does not see the case until the process is well established or serious extension has occurred. In other instances, patients are not seen until a later period when they appear at the office or clinic for relief of a chronic running ear.

As a matter of fact comparatively few of these cases are seen by the aural surgeon in the acute stage except in contagious hospitals. Even in these institutions a spirit of diffidence or carelessness is apt to appear at times and a routine course of cleaning the ears more or less thoroughly at irregular intervals is pursued by some one with little or no training or knowledge in this particular line of work. If these cases were properly treated from the beginning there would be less serious complications and fewer chronic suppurative conditions would result. However, it is admitted that a certain proportion will result unfavorably no matter how skillfully the treatment is administered.

In considering the etiology of the aural complications arising during the course of the exanthemata it may be broadly stated that their number and severity will depend upon the class of patients and the character of the epidemic. Other factors that must be taken in the light of predisposing and contributing causes are the age, climate and season, the physical condition of the patient, the condition of the upper respiratory tract, the specific infective disease, cross infections and systemic complications.

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Unfortunately we are still in the dark as to the exact causative agent of the various eruptive diseases. The bacteriological findings will vary according to the time in which cultures are made. Late cultures will usually show a mixed infection. In a considerable number of scarlet-fever patients at the Durand Hospital for Infectious Diseases, Chicago, early bacteriological examinations of secretions from the ear, nose and throat showed almost invariably a hemolytic streptococcus with occasionally the streptococcus viridans.

Age: Inasmuch as the exanthemata occur chiefly in childhood we naturally find the greatest number of aural complications occuring up to the age of 12. On account of the anatomical characteristics of the Eustachian tube, infants and very young children are more apt to be affected. The infection also seems to pursue a more chronic course. In adults the percentage of suppurative involvement is very small. We find, however, that many will show evidences of a catarrhal otitis to a greater or lesser degree.

Climate and season: In the colder months there is more liability to severer infection of the upper respiratory tract with a consequent greater possibility for aural extension.

Physical condition of the patient: In hospital practice most of the cases come from the poorer and over-crowded districts. As a result of their environment these patients show the effects of malnutrition and other evils of their unhygienic mode of living even before the contagious diseases appear. We have usually a severer type of disease with a larger number of aural infections in these patients, on account of their lowered physical resistance. Many of them do not enter the hospital until relatively late in the disease, and they show the effects of neglect of the primary condition as well as the complications.

Conditions of the upper respiratory tract: This is practically the most important factor in the causation and the chronicity of the infection of the ear. In the majority of cases, especially of scarlet fever, the initial complaint is that of sore throat. We may have a coincident involvement of the nose and naso-pharynx, or what is more common, an extension of the infection to these parts after a short time. Of the children we have treated at the Durand Hospital, it is rare to find one who has had any attention given to the tonsils and adenoids. As a result we find usually an infection of the post-nasal tissues accompanied by what may be designated for lack of a finer diagnosis, as a purulent rhinitis. Extension readily takes place to the middle ear. In all cases in children where the discharge from the ear has continued, we have had a persistent post-nasal infection. If provision could be made for the removal of the adenoids before the patient is ready to be discharged, I am confident that we would meet with fewer cases of chronic suppuration which could be attributed to the exanthemata. From the same standpoint another phase to be considered is that of reinfection. Cases which have been discharged as cured, under the influence of subsequent nasal or post-nasal infections, may easily acquire a reinfection of the ears.

The specific exanthem: According to different observers the percentage of aural infections varies within relatively wide limits. One estimate given is that at least one-third of the cases of scarlet fever are affected. Acute suppurative otitis media is regarded as the most common complication of scarlet fever. I have gone over the records of some 247 cases of scarlet fever treated at the Durand Hospital during the past year, and find that thirty-five or a little over 14 per cent had suppurative otitis media. In eighteen cases the condition was bilateral, and in seventeen unilateral. One-third of the total number had discharging ears on admission. Dr. E. K. Armstrong, of the Contagious Department of Cook County Hospital, kindly reviewed the records of 100 patients, and found a total of 23 per cent with suppurative otitis. This illustrates the variability of the statistics in this disease. A condition not emphasized enough is the catarrhal otitis media in scarlet fever. An almost equal number of patients were found to have some aural complaint such as fulness, tinnitus, pain or aching or impairment of hearing. The membranae tympani were congested to varying degrees, or were lusterless and retracted. In several there was an exudate in the cavum tympani, which upon evacuation was sero-sanguinolent and persisted only for a short time. Mastoiditis is not regarded as common in scarlet fever. There is not much doubt, however, that a large number of the cases which pursue a chronic course would be found, if operated upon, to have involvement of the bony structure.

In measles, the ordinary complications are of the suppurative and catarrhal types. The aural involvement usually occurs early in the disease. The frequency of suppurative conditions may be as high as 25 per cent of the cases, and an exudate, either serous or purulent is thought to be present in at least 75 per cent. Mastoiditis is much more common than in scarlet fever.

So much for the clinical side. When we come to review the post-mortem findings in fatal cases of measles and scarlet fever we find that in the former, evidence of purulent inflammation is found in the middle ear in 90 per cent of the cases. In scarlet fever the proportion showing changes in the middle ear and mastoid cells is fully as large. This has led Borden to offer the suggestion that we have in the middle ear a focal point for the dissemination of infection. This is exclusive of cases of lateral sinus involvement. I believe this to be true with limitations. However, in young children dying of other causes than infectious diseases it is quite common to find pus in the middle-ear cavity. We know, too, that even with apparently normal ears we may have serious complications so that it is a matter of extreme difficulty to decide how much one particular part is responsible for the systematic involvement.

Cross infections: In patients where two or more of the infectious diseases are present, or follow, the percentage of aural involvement rises rapidly. It is estimated that over 50 per cent of these patients will have ear complications. When diphtheria and scarlet are associated, suppurative otitis is very common.

Systemic complications: When nephritis is a complication it has seemed to me that the otitis runs a longer course and does not yield as readily to treatment as in other cases until the irritation of the kidneys subsides. Suppuration of other parts as from a cervical adenitis or arthritis also seems to delay healing, probably on account of its exhaustive effect upon the general constitution. As was stated above, the frequency and severity of the ear complications will depend, to a great extent, upon the character of the epidemic. It is in the septic or malignant types of scarlet fever and measles that we find the most frequent involvement of the ears with serious complications and permanent structural damage. In ordinary cases the severity of the infection will not differ from that which we find produced by other causes. We have pain, temperature, tympanic congestion, distension of the drum membrane and improvement of hearing. The distension will be relieved either by spontaneous perforation or incision and the discharge, usually sero-sanguinolent, will become purulent within thirty-six hours. In other instances the discharge may be purulent from the beginning. Usually there will be a subsidence of symptoms after drainage is established but severe otalgia may persist for a number of days.

When the progress of the case is satisfactory the discharge will last from one to three weeks. The time at which the aural symptoms appear is subject to many variations. In general it will be while the infective condition in the throat is at its height. The average time is from the third to the sixth day. In severely septic cases ear symptoms may make their appearance within the first twenty-four hours. In these early cases there is usually a marked involvement of the canal, which may be completely closed by swelling. These cases may show an almost co-incident involvement of the mastoid process or an extension to this part within a short time. In this type we have the rapid tissue destruction. In other cases the middle-ear inflammation may not show itself until the patient is convalescent. I have seen it occur as late as the sixth week.

The changes produced by the inflammatory process may also vary. We see cases that have been comparatively mild clinically leave permanent defects upon the hearing power. Others recover with apparently little or no ill results. In severe forms the tympanic membrane and ossicles may disappear. Necrosis of the mastoid portion and the labyrinth wall takes place. We may have spontaneous hemorrhage from the sinus or jugular bulb, or sinus thrombosis may occur. Brain abscess, meningitis or labyrinthitis may result from the extension of the middle-ear process. Fortunately, these more serious complications are not common. In a certain number of patients we have evidence of profound deafness in the absence of any great amount of destruction or other evidence of labyrinth or meningeal involvement. The only explanation for this condition may be found in attributing it to that of a toxic neuritis involving the auditory nerve.

Diagnosis: There can be no hard and fast rules established. In most cases we arrive at our conclusions in regard to the aural condition in the same manner as in the ear infections from other causes. In very young children the diagnosis is at times attended with considerable difficulty. Either an apathetic condition or fretfulness of varying degree may give one an indication of aural involvement. The examination of the drum membrane will, in most instances, reveal the trouble although it is a well-known fact that an otitis may be present without a definite picture of inflammation of the tympanic membrane or of exudation in the cavum tympani. The holding of the hand to the ear is not always a reliable sign, and in most cases is not present. Neither is the enlargement of the subauricular gland to be depended upon, as a cervical adenitis is usually present from the accompanying throat infection. Pain in the ear is, of course, a warning sign, but in certain instances this may be referred from a cervical adenitis, the throat infection or a decayed tooth. Infants or young children may give no signs of pain, the discharge from the ear being the first evidence of trouble. The same may apply to older children who are quite ill. The temperature and pulse offer the most reliable evidences of the otitic change. Where sufficient drainage is established, both the pulse-rate and temperature will fall. If drainage becomes obstructed we will have a rise in the temperature. If fever persists in spite of free drainage one must look for complications. When the otitis is complicated with severe infective conditions of other parts, as for instance, cervical adenitis, arthritis, nephritis or pneumonia, our difficulties are magnified. Only the continuous and careful observation of our patient will enable us to come to any conclusion as to the preponderating trouble.

As illustrating the complexity of some of these cases, I recall a patient with mastoiditis and a severe nephritis. After operation, progress was satisfactory for a time, but soon the occurrence of severe pain and headache, localized to the affected side, chills and irregular temperature caused keen anxiety as to the possibility of cranial complications. In this instance an exacerbation of the acute nephritis was found to be at the bottom of the trouble, and as this lessened in intensity, the localizing symptoms abated correspondingly. In severely sick patients where the prognosis is doubtful at best, one hesitates to add operative dangers unless a reasonable expectation of benefiting the patient is present. However, it may be said that when an extension of the suppurative condition occurs, even though the patient has pneumonia or nephritis; or other severe complication, one should not hesitate to operate in spite of the dangers of anesthesia, surgical shock, etc. The chief danger to the patient is in delaying the operative interference too long.

When sinus involvement is suspected it must be remembered that the blood culture loses its diagnostic value to some extent, as there is a definite bacteria in scarlet fever. In an article that will appear shortly in the *Journal of Infectious Diseases,* Drs. Henry and Dick will show that blood-cultures in twenty out of twenty-four scarlet fever patients gave positive results. The differential leucocyte count should be closely watched. Examination of the spinal fluid should be made if evidence of meningeal irritation is present. When mastoid symptoms are indefinite, x-ray pictures should be taken if feasible. A suspicion of mastoid involvement is at times aroused by the appearance of swelling and edema over the mastoid process which arises from inflammation of the higher cervical glands. In these cases a point of value is that the swelling usually appears below the tip and extends upward. It differs from the usual place of appearance at the upper portion of the mastoid as is found generally in children. Tenderness over the tip may arise from the same cause.

The occurrence of a facial paralysis in the course of a severe otitis accompanying scarlet fever is in most instances an indication for opening the mastoid process and providing for drainage from the middle ear through the antrum. Delay in operating may mean a great deal in-so-far as the permanency or recovery of the paralysis is concerned.

The treatment of the aural complications naturally divides itself into their prevention if possible, and their cure, if they have already made their appearance. Under prevention we must try to alleviate the accompanying nasal and pharyngeal conditions. For the latter flushing of the throat with very mild antiseptic solutions is of value. If douching is employed for the nose it should be carried out very carefully. I do not believe it is to be recommended as a general procedure in children. The employment of bland oils with small amounts of menthol and camphor seems to afford some relief. For the removal of secretions from the nose, swabbing with cotton applicators is of value, as is also the use of a suction pump in young patients. We must also employ measures to minimize as much as possible the constitutional disturbances. Attention to proper elimination, sponging for temperature, the careful regulation of the diet where we have a nephritic irritation, are all necessary if we wish to prevent or influence the local infection favorably.

When the diagnosis of an involvment of the middle ear is made, early treatment will depend upon the conditions present. If the membrane is congested and there is but slight evidence of an exudate present in the cavum tympani, we may try to abort the otitis by the application of heat externally or the installation of a 5 to 10 per cent solution of carbolic acid in glycerin. Irrigations of a hot boric acid solution often seem to be of value, as does also the application of moist dressings. Where bulging is present, incision should be made. If the middle-ear condition is accompanied by a violent inflammatory condition external to the drum, incision should be made early. As a general rule, the earlier a free incision of the drum membrane is made the less likely one is to have large perforations and possible destruction of the drum membrane. Unfortunately, in a certain number of cases severely toxic or septic from the beginning, it is impossible to prevent destruction or extension in spite of anything we may do.

After drainage is established, it is important that it be maintained. At times this will necessitate oft-repeated incisions in the membrane. The treatment that I have found to be of the most value consists only in keeping the ear as clean and as dry as possible. For irrigation, we use a solution of boric acid or normal salt. After the ear is cleaned, alcohol in various strengths may be instilled and allowed to remain for a few moments. The ear is then carefully dried and gauze wicks are inserted. These wicks are changed as often as they become saturated. The instructions to the nurses are very firm on this point. In the acute stage of the disease this naturally means a good deal of work, but I feel that in no other way could we get results.

If at the end of several weeks the aural discharge gives no indication of diminishing in amount in spite of the most careful attention the question arises as to what should be the next step. It is true that we may continue the local treatment until the requirements of the Health Department are complied with in regard to the length of time patients with discharging ears are compelled to remain in the hospital. This is not satisfactory from the physical and economic standpoint of the patient, or to others from the possibility of the dissemination of infection from the discharging ear.

In these cases several things may be considered: first, the use of vaccines; second, the correction of conditions in the upper respiratory tract which contribute to a continuation of the infection; third, the mastoid operation to provide for better drainage from the antrum and middle-ear cavity.

As with other forms of treatment, vaccine therapy will have its positive as well as negative results. Too much reliance should not be placed upon it alone. It has seemed to me from its use in other conditions that it has its greatest value when used supplementary to operative procedures. In the absence of clinical signs other than the discharge, we must depend largely upon its amount and character to furnish our indications for operative interference. As a rule, if the discharge is persistent and of a mucoid type, our attention will be drawn to the nose and especially to the naso-pharynx. If the discharge remains profuse and purulent after a number of weeks, we must recognize the fact that the cavum tympani alone cannot be responsible for the excessive amount of pus. The naso-pharynx must also receive the required attention in these cases, but in general, nothing short of the posterior drainage will suffice to bring about recovery.

A matter upon which there is some difference of opinion is whether it is advisable or wise to remove the adenoids during the convalescent stage of the infectious disease. I think that this depends largely upon the general condition of the patient. If the latter is satisfactory and a clear indication for operation is present, it should be done. Even in those cases which have recovered from the aural infection, the removal of the adenoids is to be recommended.

The treatment for the more serious complications does not differ from that pursued in cases arising independent of infectious diseases. It is needless to say that, wherever possible, treatment should not be neglected from the standpoint of the hearing in any of the cases, catarrhal or suppurative, after recovery from the exanthem.

In conclusion the writer wishes to emphasize what has been stated by others many times. 1. The need for closer co-operation between the attending physician and the aurist in private practice. 2. The necessity of competent aural surgeons in attendance in the Hospital for Contagious Diseases. 3. The isolation of patients in these hospitals at least up to the period of convalescence, lessening the liability to cross-infections. 4. The closest attention to patients, including routine examination of the ears in at least the younger patients and careful observation and treatment when symptoms of aural extension arise.

104 South Michigan Avenue.

Vaccination Against Hay-fever. J. Freeman. *Lancet.,* April 25, 1914.

Statistics show that active immunization with pollen vaccine succeeds and that the immunity lasts at least for a year after treatment has been discontinued. Patients with marked constitutional disturbances, asthma or inherited tendency are most benefited.

Ed.

TWO CASES OF LOSS OF CALORIC VESTIBULAR REACTION, WITH OPERATIVE FINDINGS.*

Dr. Edward Bradford Dench, New York City.

The following two cases are rather interesting as showing a sudden ablation in caloric reaction, together with the subsequent labyrinthine findings:

Case 1: A woman, 24 years of age, presented at the New York Eye and Ear Infirmary, with the following symptoms: There had been a discharge from the left ear at intervals, since childhood, with great impairment of hearing. Two weeks before coming to the clinic the patient complained of severe pain in the ear with rumbling noises, which continued up to the time of coming under observation. The patient also complained of dizziness, nausea and vomiting. For the first week the patient vomited about twice daily, but during the last week this had disappeared. The patient was unsteady when standing, and had a tendency to fall backward and to the left side. The patient had headache at the onset of the present trouble. The right ear had been negative, as far as the patient's history was concerned.

An examination of the drum membrane showed that there had been some previous trouble in the right ear. Examination of the left ear showed the canal somewhat narrowed, a slight purulent discharge, the membrana tympani apparently destroyed, and the normal situation of the membrana tympani occupied by a mass of granulation tissues. Slight tenderness anterior to the mastoid tip.

On physical examination the patient appears to be a fairly well developed, adult female, but poorly nourished. There is a slight spontaneous nystagmus on looking to the right. The patient is unsteady and falls backward and to the left side, with eyes closed. Gait unsteady, no ataxic symptoms of arms or legs. Face normal. Knee-jerks active, but not exaggerated. Babinski sign not present. Heart and lungs negative. The caloric test, on admission, showed an active labyrinth on each side. The caloric test on the following day showed no reaction either to the hot or cold water test upon the left side. The caloric test on the right side was normal. The patient at this time falls toward the right when walking and jumping, and feels dizzy.

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*Read at the Seventeenth International Medical Congress. Otological Section, London, August, 1913.

Owing to the fact that the caloric reaction had changed so rapidly in twenty-four hours, that the patient was extremely dizzy, and that the temperature had risen from 99.2 degrees to 100.8 degrees immediately after admission, together with the sudden loss of caloric reaction, the patient was immediately placed upon the operating table. The ordinary radical operation was first performed. A fistula was found in the horizontal semi-circular canal, and the oval window was found open. This apparently explained the labyrinthine symptoms. Consequently, a complete labyrinthine extirpation was performed, according to the Neumann method—that is, by a free exposure of the dura in the middle cranial fossa and a free exposure of the lateral sinus posteriorly. The facial ridge was then lowered to its extreme limit. The bony structures were removed in Trautmann's triangle and the labyrinth entered posteriorly, in the usual way. This drained the labyrinth posteriorly. Anteriorly, the lip of bone separating the oval and round windows was removed, thus draining the first and second turns of the cochlea. Free drainage being established, the ordinary meatal flap was formed, the posterior wound sutured, and the wound dressed in the ordinary way. This patient made an uneventful recovery.

Case 2: Boy, 14 years of age, was admitted to my service at the New York Eye and Ear Infirmary, with a history of discharge from the right ear, of six months' duration. Two months after the appearance of this discharge he came to the clinic, and two months subsequently the discharge ceased. Three days before his admission to the hospital, and six months after the first appearance of the discharge the patient complained of acute pain in the right ear and over the sterno-mastoid muscle. There had been no discharge from the right ear during the present attack. On account of the pain the patient had not been able to sleep for three nights. The patient also complained of headache and dizziness. No symptoms referable to the left ear.

A physical examination showed granulation tissue in the right tympanic cavity, springing from the upper and posterior quadrant. Upon the removal of this granulation tissue, it was evident that the ear had been the seat of a previous chronic suppurative process. There was a cicatricial membrane covering the tympanum and lying at a lower level than the normal drum membrane. This cicatricial membrane was reddened and somewhat bulging posteriorly. The temperature, at the time of the first examination, was 99.8 degrees.

The patient seemed seriously ill and was therefore admitted to the hospital. The caloric test, made at the time of the patient's admission, showed that both labyrinths were active. The granulation tissue was removed from the right tympanic cavity immediately upon the patient's admission to the hospital. Following this slight operation, the temperature began to rise until in twelve hours it had reached 104 degrees. It remained practically at this level for eight hours.

On examining the patient eight hours after the operation, I found him to be a well-nourished boy, complaining of severe pain in the right side of the neck, and crying out with the almost characteristic meningeal cry. There was no stiffness of the neck, no muscular rigidity in any part of the body, the Babinski and Kernig signs were negative. There was slight nystagmus to the affected side. A careful caloric test showed that the right labyrinth was absolutely dead,—this, in contra-distinction to the examination made twenty-four hours before, which showed an active labyrinth on this side.

This total absence of caloric reaction of the right labyrinth, together with the restlessness of the patient, made me believe the case to be one of meningitis following a labyrinth suppuration, probably excited by the removal of the granulation tissue from the right ear. The high temperature, however, and the absence of all other symptoms of meningitis,—such as the abscence of the Babinski and Kernig signs, the clear sensorium,—aside from the restlessness and crying out of the patient, induced me to make a guarded diagnosis. A spinal puncture at this time showed that the cerebro-spinal fluid was clear and was not evacuated under pressure; the differential count of the fluid was normal, its reaction was slightly alkaline, and the carbohydrate test was normal; the globulin test was also negative. A blood culture made at this time showed after eighteen hours two colonies of streptococci. Three or four hours later the plates showed two or three more colonies.

It was evident, therefore, that we had to deal, in this case, with a general streptococcic infection, and not with a meningitis. A radical operation was performed, and neither the sinus nor dura was exposed at the time of the operation. There was no fistula in any of the semi-circular canals, and the oval and round windows were closed.

Owing to the negative findings, as far as a meningitis of labyrinthine origin was concerned, and remembering the negative findings of the cerebro-spinal fluid—also bearing in mind the high temperature and the streptococcemia—I decided to expose the lateral sinus. The sinus lay fully one-half inch behind the limit of the radical operation, and the bone separating the sinus groove from the radical cavity was hard and dense. Nevertheless, when the sinus groove was opened there was an escape of fetid gas. The sinus was found collapsed and separated from the posterior surface of the petrous pyramid by a space of fully three-eighths of an inch. No free pus was present in this space, although the sinus was covered with an exudate of coagulated fibrin. The sinus was rapidly exposed backward toward the knee and downward to just above the bulb. It was thrombosed throughout this entire area. The internal jugular was then exposed from the level of the omohyoid muscle to the base of the skull. It contained fluid blood. The facial vein was tied off between two ligatures at its junction with the jugular. Just above the level of the facial vein the internal jugular appeared thickened and white in color. In other words, it seemed to be occupied by a clot at this level. The jugular was removed from just above the omohyoid to a point just below the base of the skull. The neck wound was closed in the usual way.

The lateral sinus was opened at a point midway between the knee and the bulb. The sinus wall was very much thickened, but after the lumen of the vessel had been entered and a curette introduced downward, free hemorrhage occurred from below. Hemorrhage was controlled in this direction by packing, and the torcular end of the sinus was curetted, with the result that free hemorrhage occurred. This hemorrhage was controlled by firm packing. The patient's temperature before operation was 105 degrees. It fell within the next twelve hours to 99.2 degrees, and the following day it did not rise above 102.4 degrees. At noon the next day it was 101.2 degrees. It then gradually began to rise, and at midnight on the second day after the operation, it was 102.6 degrees.

At this time the patient began to complain of some pain in the right side. The physical signs showed that he was suffering from either a beginning pneumonia or from pleurisy with effusion. The fact that he had simple crepitation over this side, did not render the diagnosis positive at this stage. Lumbar puncture was made on the third day after the operation. The spinal puncture showed a normal cerebro-spinal fluid. It was clear in appearance, the globulin test was negative, and Fehling's solution reduced. The cellular count was negative except for a few blood cells. A small amount of albumin was present in the cerebrospinal fluid. We assumed, therefore, that the patient was not suffering from meningitis, but that the rise in temperature was entirely due to the chest complication. On the following day, that is, the fifth day after the first operation, the patient's temperature rose at noon to 105.8 degrees. A lumbar puncture showed a clear fluid, but a cultivation of the fluid the following day showed long chains of streptococci. The next day a lumbar puncture showed that albumin was present, the globulins were in excess, and pus, blood and streptococci were present in the cerebrospinal fluid, thus clearly demonstrating that the patient had a meningitis.

The patient was immediately taken to the operating room, and an exenteration of the labyrinth performed, according to the Neumann method, the steps of the operation being the same as those detailed in the previous case. In this case, the superior petrosal sinus crossed the field of operation, but was exceedingly large, and, consequently, it was impossible to open the cerebellar dura at the internal auditory meatus, as advised by Neumann, in these cases. The entire sinus groove was filled with a sloughing sinus wall. The bulb was then thoroughly exposed and curetted, and the patient returned to bed.

The temperature dropped after this operation to 102 degrees, but rose in eight hours to 103 degrees. It then fell to 101.8 degrees and the patient was very comfortable. The pulse was good, and the patient simply complained of pain in the chest. Suddenly severe dyspnea developed, the patient became cyanotic and he died within half an hour of a sudden pulmonary embolus.

These two cases are of interest in that they show a sudden ablation of labyrinthine function—that is, the labyrinth tested at intervals of twenty-four hours showed a complete loss of caloric reaction. This seemed sufficient in each case to warrant the complete labyrinth operation, and the findings at the operation clearly demonstrated the wisdom of such a procedure.

The complete cure in the first case was evidently due to prompt interference. The second case was of unusual interest, in that we had to do with a sinus thrombosis, apparently of long duration, as judged by the operative findings. I do not think there is any question but that the sudden involvement of the labyrinth.

in this case, was secondary to the jugular thrombosis. When we bear in mind the close relation which exists between the aqueductus vestibuli, the aqueductus cochleae and the lateral sinus, it is not difficult to understand why a thrombosis of the lateral sinus would cause a sudden ablation of labyrinthine function. The aqueductus cochleae, as we know, lies just above the jugular bulb. The aqueductus vestibuli occupies the posterior surface of the petrous portion of the temporal bone, just in front of the descending portion of the sigmoid sinus. It seems to me beyond question, therefore, in the second case, that infection of the labyrinth occurred secondarily to involvement of the sinus, and that the sudden ablation of labyrinthine function was dependent upon the sinus thrombosis, and prompt interference in this second case would probably have been followed by results quite as satisfactory as those obtained in the first case, had not pulmonary embolism occurred and caused a fatal termination.

15 East Fifty-third Street.

Packing After Mastoid Operation. E. Weissmann, *Rev. hebd. de Laryngol.*, May 9, 1914.

The author compares the routine method of packing with gauze after a mastoid operation, the partial closure with drain and the complete closure and suture after the operation, and shows, from an extensive analysis of these various methods, that the latter should be given the preference. Scheppegrell.

Involvement of Naso Pharynx. W. S. Bryant, *Am. Jour. Med. Sci.*, July, 1914, p. 61.

Bryant designates the pharynx as the gateway of almost all human diseases since so many diseases are primarily air-borne. The susceptibility of the naso-pharynx is due to man's assumption of the upright position, the growth and development of the brain and the "retrograde metamorphosis of the nose, face and teeth."

Ed.

TERATOMA OF THE PHARYNX.*

Dr. Curtis C. Eves, Philadelphia.

J. K., a male child, 14 months old, apparently well formed and well nourished, was brought to the nose and throat dispensary of the Pensylvania Hospital, September 9, 1911, by his parents, who gave the following history:

When the child was 3 weeks old, following an attack of vomiting, they noticed something protruding from the mouth. The father thinking the child had got a piece of cheese in its mouth tried to pull it out but found it was fast. The child chewed upon the growth for a few minutes, then swallowed with difficulty a few times and the growth disappeared. Their physician assured them that there was nothing in the child's mouth or throat and thought they must have mistaken the child's tongue for a growth. Two weeks later the mother again noticed the growth protruding from the child's mouth, disappearing in a few minutes as before. For two or three successive days, each time after taking nourishment, the growth was noticed after the child gagged or vomited. At irregular intervals from a few hours to two weeks, the child had vomited up the growth, chewed at it a few minutes and then swallowed it out of sight. Between the times the growth was seen the child suffered no discomfort, swallowing and breathing normally. The parents had had the child examined several times by different physicians and each time were assured that it was the child's tongue they had seen.

Examination: From the usual examination of the child's throat, nothing could be seen in the mouth or throat. The child was then held by an experienced attendant, the mouth was kept open with a mouth-gag, gagging was induced by placing the index finger in the child's throat. After two or three attempts, a finger-like growth came up into the throat, doubled upon itself until the free end was liberated. Then it shot forward into the mouth, protruding about one-half inch beyond the lips. It was smooth, pinkish in color, and seemed about the size and shape of the child's middle finger. The attachment was by a pedicle to the right side of the posterior wall just behind the upper end of the post-tonsillar pillar. When the gag was removed the child chewed upon the growth for a few minutes and with some difficulty swallowed it completely out of sight, the pedicle being entirely hidden behind the posterior pillar of the right side, the main body of the growth was evidently suspended into the child's esophagus. Two days later the growth was removed. Before giving the child an anesthetic, the mouth was held open for an examination of the throat but no evidence of the growth could be seen. To make sure of getting hold of the growth, the child was made to gag it up. The growth came into the throat and shot forward as it did two days before. The end was caught by a hemostat. When the growth was put on the stretch the pedicle appeared so small that it was excised at the base with curved scissors, without an anesthetic. Very little bleeding occurred. An examination of the throat after forty-eight hours showed only a small white area about the size of a pin head.

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The laboratory report furnished by Dr. Longcope is as follows: Total length of specimens 5 cm.; length of the skin covered part 2.9 cm.; width of the skin covered part, widest, 1.1 cm.; width of skin covered part, narrowest, 1.3 mm.; length of the mucous membrane covered part 1.5 cm.; length of the pedicle 6 mm.; width 2 mm.

The skin is perfectly white, soft, and of the texture of the child's neck. It shows downy hair projecting from the follicles at about normal intervals for skin. The mucous membrane is pale pink and very smooth. There is no evidence of glands in gross examination. Definite line of demarcation like that at the child's lip. Pedicle seems to have large vessel in it.

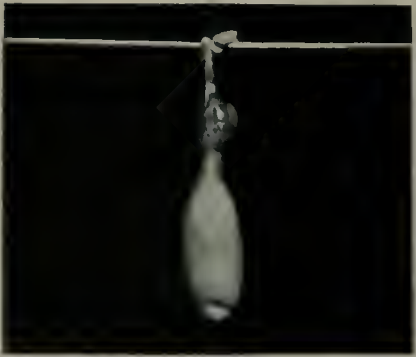
Microscopical examination: Section shows skin to be thin, normal, fully developed and supported by normal subcutaneous connective tissue. The center of the mass consists of subcutaneous fat.

Diagnosis: Teratoma of the pharynx.

Teratomata are mixed tumors of congenital origin formed from the three germinal layers of the embryo. The exact etiology is not definitely determined. They are, as Stengel[1] says, evidently due to some congenital misdevelopment. The most widely accepted explanation as to their etiology is that of Wilms.[2] His theory is that these tumors are derived from the blastomeres of the developing ovum, which are supposed to become displaced at a very early stage of development As these are separated at a time when differentiation has not yet taken place, it may be assumed that wherever they develop they may, following their inherent developmental power, produce tissue containing products of all three germinal layers.

In pharyngeal teratomata the embryonic layers are represented in varying proportions. Sometimes only two of the three layers are represented. When discovered after early childhood their structures may resemble in parts fibroma, sarcoma or carcinoma, with no other evidence of malignancy. They do not tend to recur when completely removed, neither do they form metastasis.

Teratomata are among the rare tumors found in the pharynx, yet the pharynx is one of the most frequent locations in which growths of this nature are found. This is no doubt because of the development of the pharynx from the close approximation of the germinal layers.



The photograph shows the growth two-thirds its actual size. The depression in the lower end was made by grasping it with the forceps when it was removed.

I have reviewed the literature of twelve cases of teratomatous growths in the region of the pharynx, under the names of teratoma, dermoids and hairy polyps. Out of this number, ten had attachments to the soft palate, one each to the right anterior pillar and right tonsil, and one to the posterior pharyngeal wall. Of the three other cases which have been reported, namely, that of Serapin,[3] Garel,[4] and Aberham,[5] I have been unable to obtain the original reports.

The tumors were generally pedunculated and accordingly gave rise only to symptoms referable to obstruction of the larynx or pharynx, difficult breathing and dysphagia, according to the size and location of the growth.

The ages of discovery ranged from birth to the sixty-sixth year, the greater number being discovered because of dyspnea at birth.

Otto,[6] Clerault,[7] Arnold,[8] Legroux,[9] Mausche,[10] and Kidd[11] reported cases in which it was necessary to remove the growth at birth or within a few days after for the relief of dyspnea. Goscher's[12] case was reported in 1865. The growth was found in the child's mouth after a fit of vomiting, ten days after birth. It caused no symptoms until the sixth month when a tumor the size of a hazelnut, attached by a pedicle, was removed for the relief of difficult breathing during sleep. This case presents especial interest in that Goscher reports a probable recurrence, twelve days after removal, of a similar growth one-fourth the original size. Otto,[6] in discussing Goscher's case gives a very plausible explanation. He says it was probably a portion of the first growth left, or an entirely separate growth attached near, which was not detected at the time the first was removed. He thinks recurrence cannot take place where the growth has been thoroughly taken out.

Fullerton[13] reported a case of apparently two separate tumors, the larger had a pedunculated attachment to the right tonsil, the second, a smaller growth, was attached just below. The microscopical examination of the larger growth showed areas resembling spindle-cell sarcoma and fibroma.

Coffin[14] reports the oldest case, occurring in a woman 66 years old. The base of the growth was dissected out by a unique operation together with the posterior layer of the soft palate. This case showed areas resembling carcinoma. Another case reported by Coffin,[15] giving only symptoms of nasal obstruction on the left side was discovered in a man 35 years old. The growth was attached to the posterior pharyngeal wall.

White[16] removed a dermoid tumor, attached to the soft palate by a broad base, two inches long, the size of one's finger, from a child 3 years old, which only gave symptoms of difficulty in swallowing solid food.

The largest tumor was reported by Kidd[11], a mass eight inches long and six inches in the widest part, protruded from the mouth at birth.

Arnold[8] reported a number of cases in which mixed tumors were found attached in the region of the pharynx in premature dead-born children.

Bosworth[17] says, "It would seem that these cases which have been observed in fetal life were extensive in character and did not belong especially to any region of the fauces, but really involved quite general attachments. The existence of such growths are frequently associated with malformations in other parts of the fetus and that the presence of such a growth was the probable cause of death in the uterus."

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Tonsillitis and Appendicitis. L. Verdelet, *Gaz. hebd. des Sci. Med. de Bordeaux*, April 19, 1914.

Case 1: Woman of 36 years; no previous intestinal trouble. Bilateral acute tonsillitis followed by acute abdominal pain intensified at McBurney's point. Vomiting, tympanites, constipation, fever. Recovery under medicinal treatment for appendicitis.

Case 2: Woman of 25 years. Acute sore throat and double tonsillitis. After six days, abdominal pains with symptoms of appendicitis. Improvement and then recurrence; operation. Ed.

ORBITAL ABSCESS WITH OPTIC NEURITIS DUE TO ACUTE ETHMOIDITIS IN A CHILD. OPERATION. RECOVERY.*

Dr. J. H. Guntzer, New York City.

The extreme rarity of optic neuritis due to acute ethmoiditis is sufficient reason for the report of the following case:

Minnie S., aged 7 years, a normal child and in apparent good health, came to the Manhattan Eye, Ear and Throat Hospital to Dr. Hepburn's Eye Clinic on March 18, 1914. She had had no recent illness until the right eye became swollen two days ago.

There was well-marked orbital cellulitis, the upper and lower lid swollen with tenderness over the inner margin of the orbit, marked exophthalmos with displacement of the eyeball downward and outward, ocular motion limited above and internally, the eye dilated outward. Diplopia: V 20/200. Conjunctival blood vessels injected. Fundus examination showed the veins enlarged, tortuous, the arteries normal. Disc-color=red; margin=blurred. Diagnosis: Optic neuritis.

The patient was turned over to my nose and throat service, and admitted to the ward. On the same afternoon the orbital abscess was incised at the most prominent portion on the nasal side below the brow in order to relieve the ocular pressure. A few drams of pus escaped. The following day the ethmoidal labyrinth was exenterated by the external route. Excepting the sloughing of one of the skin sutures the recovery was uninterrupted. Six weeks after operation the eye-ground has entirely cleared up with V. 20/20.

About two years ago the writer reported and presented to the Section an identical case, in a child, with the same good results following operation.

10 East Forty-first Street.

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*Report and presentation of patient at the meeting of the Section on Laryngology and Rhinology of the New York Academy of Medicine, May 27, 1914.

THE USE OF VACCINES IN THE TREATMENT OF CHRONIC DIPHTHERIA CARRIERS.*

Dr. Arthur I. Weil, New Orleans.

The occasional persistence of the Klebs-Loeffler bacillus in the throats and noses of patients for weeks and sometimes months after their complete clinical recovery, has been a source of annoyance and concern to everyone who has had to do with diphtheria patients. The necessity for complete isolation of such patients as long as the organisms in virulent form are present, self-evident though it is, entails a serious loss of time and inconvenience to the patient.

This is true not only of those carriers who have just recovered from an active diphtheria, but likewise of that other class in whom, though they have never had an active diphtheria, nevertheless either through contact with diphtheria patients or otherwise, the Klebs-Loeffler bacilli are present. The necessity for their isolation is just as great and the presence of the germ is just as persistent, even more so, than in those who have actually suffered from the disease. Needless to say, they are more dangerous than the active case, for the one is carefully guarded against, the other not at all.

To shorten the period of enforced isolation of both classes and to hasten the disappearance of the germs, many procedures have been recommended: antiseptic sprays and gargles for the throat; local applications to the tonsils, especially deep into the crypts; antitoxins; extirpation of the tonsils and adenoids; endotoxins; vaccines and the use in the nose and throat of a spray of a living broth culture of the staphylococcus. In a recent article, Albert[1] has summarized these several methods with sufficient reference to the literature. Brief mention of some of them will be made later.

It is the eradication of the diphtheria bacilli from the nose, throat and ears of both classes of carriers and the resultant stamping out of a diphtheria epidemic in a public institution, an orphan asylum, that forms the basis of the present paper.

After a year or more of sporadic outbreak of the disease, constantly recurring in spite of the most careful isolation of the diphtheria patients, twenty-four cases finally remained in the isolation wards of the Touro Infirmary, where all of the active cases had been treated. Doctor Wilson, the visiting pediatrist of the asylum, kindly turned these cases over to me with the request that I should attempt to free them from diphtheria bacilli so as to allow of their return to the asylum.

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*Presented as a candidate's thesis to the twentieth annual meeting of the American Laryngological, Rhinological and Otological Society, Atlantic City June, 1914.

For the purpose of classification, I have divided the patients into three groups: 1. Those who, having had an active diphtheria infection, had been clinically entirely well for a period of two weeks or longer but in whom live diphtheria bacilli were still found in the cultures. The period during which a positive culture had persisted after complete clinical recovery varied from three months to something over two weeks. There were nine children in this group whom I have called "chronic active carriers."

2. Those in whom, though they had never had an active diphtheria, the cultures showed the presence of the diphtheria bacilli. Since they never had diphtheria and the presence of the bacilli was only discovered in the course of a routine cultural test of all the inmates of the asylum, it is impossible to know just how long they had been carriers. It is fair to assume, however, since the epidemic had persisted for a year or more in spite of the immediate isolation of any true case of diphtheria, that some of them at least had been carriers for a long time and had been the means of infecting many of their less resistant comrades. There were twelve children in this group whom I have called "chronic passive carriers."

3. Those who had an active diphtheria infection but in whom less than two weeks had elapsed from the time of their complete recovery to the beginning of the vaccine treatment. This group comprises three patients whom I have called "active carriers." Since they are not chronic carriers they do not properly belong in this report, but I have included them because I thought it would be interesting to show whether the use of the vaccines had shortened their period of terminal isolation.

Needless to say that this grouping and nomenclature is entirely arbitrary. There is no definite point at which a diphtheria case becomes a chronic carrier. The average time in my experience in which the cultures become negative is about a week after the patient is clinically well, allowed to have solid food and be out of bed. I have taken double this time as the shortest period in which a case might be called a chronic carrier. A glance at the detailed report of cases will show that only Cases 2 and 8 approximate this period, the rest being from four weeks to three months. As for the terms "chronic active carriers" and "chronic passive carriers," they are only used to differentiate between groups 1 and 2, and are not suggested as scientifically accurate.

It was a question at the outset just which of the various methods that have been recommended to get rid of the germs in carriers gave the best promise of success. The use of local antiseptic applications and sprays did not appear rational for the double reason that (1) the antiseptic would necessarily have to be too weak to be of much use, and (2) they would not reach into the depths of the tonsil and adenoid crypts, nor into the accessory nasal cavities the places of refuge, I believe, of the bacilli in these chronic carriers, whence they spread to the superficial mucous membrane and give rise to positive cultures.

The extirpation of the tonsils and adenoids seems to me to be a dangerous procedure in the presence of the living Klebs-Loeffler bacillus and I know of two cases, though they did not occur in my own practice, in which tonsillectomy in carriers was followed by a very severe and serious diphtheria.

The local use of antitoxin in the throat and nose or its use by injection, has given little or no result. It might be well to emphasize the fact, however, that by no means is the use of vaccines or any of the other methods mentioned intended as a substitute for the use of antitoxin in the cure of diphtheria. The great value of that treatment cannot be over-estimated and vaccines are used only to supplement the antitoxin treatment in those cases where the diphtheria bacilli persist after a complete clinical cure has been effected.

Concerning the use of the staphylococcus spray, Catlin, Scott and Day,[2] Lorenz and Ravenal[3] and quite a number of others report success with this method of treatment. Indeed this, though not wholly devoid of danger, seems to be the most promising treatment outside of active immunization of the patients. Those who have tried it report, with few exceptions, no untoward results from its use; but Davis[4] reports a case of acute tonsillitis following the use of the staphylococcus spray. Luckey, quoted by Albert[5] reports a similar case.

A more rational method, it would seem to the writer, is the active immunization of the patients by means of endotoxins or vaccines. If by this means the production of antibodies and other bodies hostile to the growth of the bacilli can be increased in the blood, and if the blood stream can be brought into close enough contact with the living bacilli, their increase would obviously be retarded and eventually they would be destroyed. Theoretically, the efficacy of this method of treatment depends upon how much effect the hostile blood stream within the tissues would exert upon the living bacilli upon their surface.

Hewlett and Nankivell[6] report a series of twenty-four cases, all of which, except five acute cases, were chronic carriers, treated with endotoxin. They report success in thirteen out of nineteen carriers, and think they noted a shortening of the period of terminal isolation in the acute cases. Even in those chronic cases where the bacilli persisted, they noted a marked decrease in the number of organisms.

The first to use vaccines for the cure of chronic carriers was Petrusshky.[7] He later reports seven cases.[8] In preparing his vaccines the bacilli were killed by means of chloroform vapor instead of heat, and since his vaccines were not standardized either by Wright's or any other method, the dosage in number of dead bacilli is uncertain. In four cases of active diphtheria he reports good results in that the throats were clear of bacilli in one to four weeks. In two chronic carriers one was permanently free of diphtheria bacilli in fifteen months, the other, which showed the bacilli in the sputum as well as in the throat, in about six months. A third case with Klebs-Loeffler bacillus in the sputum, on account of intense reaction and pain at the site of injection, was treated with the vaccine in an ointment rubbed into the skin. The bacilli disappeared in about six weeks. He also recommends the active immunization of children with vaccines, preferably by the inunction method, in order to make them less susceptible to diphtheria. Of several hundred cases thus treated only one has contracted diphtheria.

Hall and Williamson[9] report success in four out of six cases treated with vaccines in increasing doses, from 75 million to 1,000 million. Forbes and Newsholme[10] used vaccine in three cases of membranous diphtheritic rhinitis of long standing, in one of which there was also diphtheritic infection of the ear. Their dosage was from 10 million to 400 million. Although the membrane disappeared from the nose, the bacilli were still present in the cultures but in smaller numbers than before.

In my cases I used first a stock vaccine obtained from one of our manufacturing pharmaceutical houses. The initial dose was in some cases 20 million, in some 40 million, repeated every three or four days in increasing numbers until a maximum dosage of 400 million was reached. The vaccine was administered in every case by subcutaneous injection into the arm. Six doses of the stock vaccine in all was used on each patient. An interval of twenty days was then allowed to elapse to note what result had been obtained. In the unsuccessful cases treatment was resumed, this time with a vaccine made in the laboratory of the Touro Infirmary from a mixture of the bacilli secured from those remaining positive cases which showed the greatest number of bacilli. The dosage of this, which I call a mixed vaccine in contradistinction to the stock vaccine used above, was begun at 300 million and rapidly increased to 1,400 million, five doses in all of this mixed vaccine being used. The method of preparing both vaccines was similar. After isolation and the growth of the organisms in pure culture, the bacilli were washed from the blood-serum pure culture with normal salt solution, standardized according to Wright's method, killed by a heat of 55° to 60° C. for an hour in a water bath, tested for sterility, diluted to the proper strength and preserved with one-fourth per cent trikresol or one-tenth per cent carbolic acid.

The local reaction at point of injection, though sometimes quite marked, was in no case severe enough to cause any inconvenience to the patient. Several of the patients showed no reaction whatever throughout the entire treatment. A systemic reaction as evidenced by a rise in temperature did not appear. One patient, Case 12, showed a rise of temperature to 100.2° four hours after injection of the initial dose of 40 million, but as there was no local reaction at that time and no increase of temperature or local reaction following the second dose of 80 million, it would seem that the slight rise of temperature after the initial dose was merely a coincidence. There was no apparent relation between the amount of local reaction and the efficacy of the treatment. Some of the favorable cases showed no reaction at all, while some of the most persistent ones gave a marked reaction throughout.

One of the patients, Case 14, developed an acute follicular tonsillitis during the course of the treatment. The cultures made from the throat at this time showed the presence of the staphylococcus in large numbers but no diphtheria bacilli. As the culture made from the throat a few days previous was also free of diphtheria bacilli, this incident throws no light on the question whether, as is maintained by some, a staphylococcus sore throat tends to destroy the diphtheria bacilli. It is on this theory that the treatment by staphylococcus spray is founded.

Of the twenty-four cases, three cases—4, 15, and 20—had cronic suppuratitive otitis media with the bacilli present in the aural discharge. A culture was made from the ear each time it was made from the throat, and the bacilli disappeared practically simultaneously from both regions. Case 20 had the organisms present in the aural discharge, but not in the nose or throat. Among the chronic passive carriers, five or six had a chronic nasal discharge, though in no case was there a membrane present in the nose except in Case 6 of Group 1, which had a nasal membrane and very little in the pharynx. The cultures from the noses as well as from the throats of these patients were positive. It might be mentioned in passing that in all of the cultural tests of the patients comprising this report swabs were in every instance taken from the nose as well as from the throat. A negative culture throughout this report means that both the nose and throat were negative.

The results obtained from the vaccine treatment although in the early stages of the experiment somewhat disappointing were in the end, I think, sufficiently satisfactory to warrant their further trial in the treatment of chronic carriers. In discussing the result of treatment the three cases comprising Group 3, since they are not chronic carriers, will be omitted at this time, but will be mentioned separately later.

No culture was taken from any of the cases until several days after the third dose of vaccine, 160 million, had been administered, allowing a period of over ten days for the vaccine to have effect. It will be seen from the case-reports that six cases—1, 3, 9, 13, 18 and 22—showed negative cultures at that time, which remained permanently negative. Of these cases which may be called cures, the first three had been chronic active carriers for respectively three, four and seven weeks, and the last three passive carriers for an uncertain time. The objection may naturally be made that these results are not conclusive since the throats might have become clear of bacilli in that time without the use of vaccines. This argument cannot be controverted except that the almost uniform success which later attended the use of larger doses of vaccines and the diminution of the number of organisms in the cases which remained positive, might lead us to believe that they had an influence at least on some of the cases.

At the time of this first trial eight others—Cases 2, 4, 5, 7, 8, 16, 17 and 20—in addition to the six mentioned above gave a negative culture. This led us to expect that the experiment would prove a brilliant success and that the cultures of all would soon be negative. In this hope we were disappointed, for, on the second, third or fourth trial, all of them again showed a positive culture. A glance at the case-reports will show that it was not at all unusual for two or three negative cultures to be followed by a positive or *vice versa*. This seeming inconsistency was not due to carelessness either in taking the swabs or examining the cultures. The swabs were painstakingly made in every instance, going deeply into the tonsillar crypts or rubbed carefully into the nasal mucous membrane and every slide was thoroughly examined. Thanks are due to Drs. Duval and Langford, the pathologists, and to Dr. Meadows, the pathological interne, for their conscientious assistance in this part of the work. This alternation of positive and negative cultures may have been due to a reinfection of the negative by the positive cases, though the positive ones were isolated as well as possible throughout the course of the treatment. It can be accounted for more probably, however, by the possibility of the few diphtheria bacilli in the culture having been overlooked in spite of the carefulness of the examination; for it was noted in all of the cases shortly after the beginning of the vaccine treatment, that even when the diphtheria bacilli persisted they became so few in number that they could be detected only after a rather careful search of the slide. Previous to the vaccine treatment many of the cases showed the presence of the bacilli in large numbers, sometimes almost in pure culture.

On account of this tendency to recurrence of a positive culture after several negatives it was deemed advisable not to discharge any patient as cured until after he had given at least six negative cultures in succession, nor was the vaccine treatment discontinued in most cases until the occurrence of six consecutive negative cultures.

A further reference to the case-report will show that six more cases—Cases 8, 14, 17, 18, 20 and 21—all of them except the first belonging to Group 2, were cured at the close of the first period of treatment; that is the treatment with the stock vaccines. To most of these, since they had not yet shown six consecutive negative cultures, the mixed vaccines were later given in order to insure the permanency of the cure.

There remained then nine cases in which the diphtheria bacilli still persisted on May 2, twenty days after the finish of the first course of treatment: that is treatment with the stock vaccines, and a maximum dosage of 400 million. This was six weeks after the use of the initial dose of vaccine. On that date the treatment was resumed in these remaining cases with mixed vaccine, beginning with 300 million and repeated every three or four days until a maximum dose of 1,400 million was reached, i. e., five doses of the mixed vaccines. The final dose was given on May 20. By that time all but five gave permanently negative cultures. These five gave positive cultures on one, or at most, two more trials, after which their cultures were also permanently negative. That they have remained so is evidenced by the fact that up to the time of the present writing, a period over five months, no case of diphtheria has developed in the asylum whither these patients were returned. A period of about two months had elapsed from the beginning of the treatment until all of the patients gave permanently negative cultures.

Of the three active cases comprising Group 3, in one case ten days, and in the other two about one month elapsed between their complete clinical recovery and the last positive culture. Their period of terminal isolation accordingly did not seem to be diminished. The cases, however, are too few to allow any definite conclusion to be drawn.

In drawing conclusions as to the value of the vaccine treatment in the twenty-one chronic carriers, the possibility must not be lost sight of, that many, if not all of them, might have cleared up without the use of vaccines. In view of the fact, however, that practically all of the cases showed a marked diminution in the number of bacilli present shortly after the treatment was begun and that all of them eventually did clear up with the larger doses, the belief would seem to be justified that the vaccines are of some value. At any rate, it has been shown that diphtheria vaccines in large doses can be used without the slightest inconvenience to the patient, and we are justified at least in recommending their further trial whenever the occasion arises.

From our experience it would appear that large doses give better results than small. Whether the autogenous vaccines are more useful than the stock is a matter of opinion. In our experiment we began with a stock vaccine and continued with a mixed vaccine as described above, which although in no sense autogenous was still somewhat different from the stock vaccine.

If we had had a larger number of cases to treat, or if all of them had been chronic carriers for a period of three months or more as some of them were, our conclusions would have been more valuable.

This is a subject of such general interest and so little work has been done along the lines indicated, that I thought it might be worth while to get an expression from a number of men of their opinion as to the existence of chronic carriers and the efficacy of the use of vaccines in general. I accordingly sent letters to one hundred representative ear, nose and throat specialists throughout the country asking their answers to these questions. Of almost sixty answers received, forty-three believed in the existence of chronic diphtheria carriers, one did not and four were uncertain. Fifteen declined to express an opinion on account of lack of experience. Concerning the efficacy of vaccines, thirty-one believed in their usefulness, twelve were uncertain and sixteen had not sufficient experience to express an opinion.

Group 1: Patients who, having had diphtheria had been clinically entirely well for a period of two weeks or longer before the vaccine treatment was commenced. Called "chronic active carriers."

Case 1: G. S., age 6; female; admitted February 20, discharged May 5. February 20, admitted. Active faucial diphtheria. Culture +. February 21, antitoxin, 10,000 units. March 1, clinically well. Since then a carrier. Culture, +. March 1 to 22, culture positive on several trials. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 2, culture —. April 3, stock vaccine, 320 million. April 8, stock vaccine, 400 million. Culture —. April 12, stock vaccine, 400 million. April 14, since then six negative cultures. May 5. Discharged. Culture —.

Case 2: M. S., age 12; female; admitted February 28, discharged June 9. February 28, admitted. Active faucial diphtheria. Culture +. February 28, antitoxin 10,000 units. March 1, antitoxin 10,000 units. March 4, clinically well. Since then a carrier. Culture +. March 6 to 22, culture positive on several trials. March 22, stock vaccine 40 million. Culture +. March 26, stock vaccine 80 million. March 29, stock vaccine 160 million. April 3, stock vaccine 320 million. April 8, stock vaccine 400 million. April 12, stock vaccine 400 million. Culture —. April 14, culture —. April 23, culture +. May 1, culture —. May 2, mixed vaccine 300 million. May 6, mixed vaccine 500 million. Culture +. May 10, mixed vaccine 1,000 million. May 12, culture +. May 15, mixed vaccine 1,000 million. May 16, culture —. May 20, mixed vaccine 1,400 million. May 21, culture +. May 25. Since then six negative cultures. June 9. Discharged. Culture —.

Case 3: F. K., female; age 15; admitted February 13. discharged April 16. February 13, admitted. Active faucial diphtheria. Culture +. February 13, antitoxin 15,000 units. February 14, antitoxin, 10,000 units. February 15, antitoxin 10,000 units. February 22, clinically well. Since then a carrier. Culture +. February 22 to March 17, culture positive on several trials. March 17, stock vaccine 20 million. Culture +. March 21, stock vaccine 80 million. March 25, stock vaccine 160 million. March 28. culture —. March 29, stock vaccine 320 million. Culture —. April 2, culture —. April 10, culture —. April 12, stock vaccine 400 million. Culture —. April 14, culture —. April 16, discharged. Culture —.

Case 4: C. G.; female; age 10; admitted January 18, discharged June 3. January 18, admitted. Faucial, nasal and aural diphtheria. Culture +. January 25, clinically well. Since then a carrier. January 25 to March 17, culture positive on frequent trials. March 17, stock vaccine 20 million. Culture +. March 21, stock vaccine 80 million. March 25, stock vaccine 160 million. March 28 culture —. March 29, stock vaccine 320 million. March 30, culture —. April 2, culture —. April 10, culture —. April 12, stock vaccine 400 million. April 13, culture +. April 23, culture +. May 1, culture —. May 2. mixed vaccine 300 million. May 6, mixed vaccine 500 million. Culture +. May 8, mixed vaccine 1,000 million. May 12, culture —. May 15, mixed vaccine 1,000 millino. May 16, culture —. May 20, mixed vaccine 1,400 million. May 21, culture —. May 25, since then culture negative on three trials. June 3, discharged. Culture —.

Case 5: B. R.; female; age (?); admitted January 23, discharged June 7. January 23, admitted. Practically clinically well at the time of admission. Culture, +. Has been a carrier since. January 23 to March 17, culture positive on several trials. March 17, stock vaccine 40 million. Culture, +. March 21, stock vaccine, 80 million. March 25, stock vaccine, 160 million. March 28, culture, —. March 29, stock vaccine, 320 million. Culture, —. April 10, culture, —. April 12, stock vaccine, 400 million. Culture, —. April 14, culture, +. April 23, culture, +. May 1, culture, —. May 2, mixed vaccine, 300 million. Culture, —. May 6, mixed vaccine, 500 million. Culture, —. May 10, mixed vaccine, 1,000 million. May 12, culture, —. May 15, mixed vaccine, 1,000 million. May 16, culture, +. May 20, mixed vaccine, 1,400 million. May 21, culture, —. May 25, since then culture negative on six trials. June 7, discharged. Culture, —.

Case 6: A. U.; female; age 5; admitted December 17, 1912, discharged June 4, 1913. December 17, pharyngeal and nasal diphtheria. Culture, +. December 25, clinically well. Since then a carrier. Culture, +. December 25 to March 22, culture positive on repeated trials. March 22, stock vaccine 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 2, culture, +. April 3, stock vaccine, 320 million. April 8, stock vaccine 400 million. April 10, culture — April 12, stock vaccine, 400 million. April 14, culture, +. April 23, culture, —. May 1, culture, —. May 2, mixed vaccine, 300 million. May 6, mixed vaccine, 500 million. Culture, +. May 10, mixed vaccine, 1,000 million. May 12, culture, —. May 15, mixed vaccine 1,000 million. Culture, —. May 20, mixed vaccine 1,400 million. May 25, culture, —. May 29, culture, —. June 4, discharged. Culture, —.

Case 7: A. E.; female; age (?); admitted January 27, discharged June 7. January 27, admitted. Active faucial and nasal diphtheria. Culture, +. January 27, antitoxin 10,000 units. February 3, clinically well. Since then a carrier. Culture, +. February 3 to March 17, culture positive on several trials. March 17, stock vaccine, 20 million. Culture, +. March 21, stock vaccine. 80 million. March 25, stock vaccine, 160 million. March 28, stock vaccine, 320 million. Culture, —. March 30, culture, —. April 2, culture, +. April 5, culture, —. April 10, culture, —. April 12 stock vaccine, 400 million. April 14, culture, —. April 23, culture, —. April 26, culture. —. April 28, culture, +. May 2, mixed vaccine, 300 million. Culture, +. May 6, mixed vaccine, 500 million. Culture, —. May 10, mixed vaccine, 1,000 million. May 12, culture, —. May 15, mixed vaccine, 1,000 million. Culture, +. May 20, mixed vaccine, 1,400 million. Culture, —. May 21, since then culture negative on six trials. June 7, discharged. Culture, —.

Case 8: D. H.; female; age (?); admitted February 24, discharged May 17. February 24, admitted. Faucial diphtheria. Culture, +. March 2, clinically well. Since then a carrier. March 2 to March 17, culture positive on several trials. March 17, stock vaccine, 20 million. Culture, +. March 21, stock vaccine, 80 million. March 25, stock vaccine, 160 million. March 29, stock vaccine 320 million. Culture, —. March 30, culture, +. April 3, stock vaccine, 320 million. Culture, —. April 6, culture, +. April 8, stock vaccine, 400 million. April 10, culture, —. April 12 stock vaccine, 400 million. April 14, culture, —. April 25, culture, —. May 1, culture, —. May 2, mixed vaccine, 300 million. May 6, mixed vaccine, 500 million. Culture, —. May 10, mixed vaccine, 1,000 million. May 12, culture, —. May 15, mixed vaccine, 1,000 million. May 17, discharged. Culture, —.

Case 9: H. P.; female; age 17; admitted January 30, discharged April 17. January 30, admitted. Faucial diphtheria. Culture, +.

January 30, antitoxin 10,000 units. February 2, clinically well. Since then a carrier. February 2 to March 22, culture sometimes positive, sometimes negative on repeated trials. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. Culture, —. April 8, stock vaccine, 400 million. Culture, —. April 12, stock vaccine, 400 million. Culture. —. April 14, since then culture negative on five trials. May 5, discharged. Culture, —.

GROUP 2: Patients who never had an active diphtheria, but in whom the diphtheria bacilli were found in the course of a routine cultural test. The length of time they had been carriers is uncertain. Called "chronic passive carriers."

Case 10: P. M.; female; age 7; admitted March 13, discharged May 5. March 13, admitted. A carrier. Culture, +. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. Culture, —. April 8, stock vaccine, 400 million. April 10, culture, —. April 12, stock vaccine, 400 million. April 14, since then culture negative on seven trials. May 5, discharged. Culture, —.

Case 11: I. G.; female; age 12; admitted March 18, discharged June 11. March 18, admitted. A carrier. Culture, +. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. Culture, +. April 8, stock vaccine 400 million. April 10, culture, —. April 12, stock vaccine, 400 million. April 14, culture, +. April 23, culture, +. May 2, mixed vaccine, 300 million. Culture, +. May 6, mixed vaccine, 500 million. Culture, +. May 10, mixed vaccine, 1,000 million. Culture, —. May 15, mixed vaccine, 1,000 million. Culture, +. May 20, mixed vaccine, 1,400 million. Culture, —. May 25, culture, +. May 29, since then culture negative on six trials. June 11, discharged. Culture, —.

Case 12: M. K.; female; age 12; admitted March 18, discharged June 11. March 18, admitted. A carrier. Culture, +. March 22, stock vaccine, 40 million. Temperature reaction to 100.2° four hours after injection. No local reaction at site of injection. March 26, stock vaccine, 80 million. No reaction, local or general. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. Culture, —. April 8, stock vaccine, 400 million. Culture, —. April 12, stock vaccine, 400 million. April 14, culture, +. April 23, culture, —. May 2, mixed vaccine, 300 million. Culture, —.

May 6, mixed vaccine, 500 million. Culture, +. May 12, culture, —. May 15, mixed vaccine, 1,000 million. Culture, +. May 20, mixed vaccine, 1,400 million. Culture, —. May 21, culture, —. May 25, culture, +. May 29, since then culture negative on six trials. June 11, discharged. Culture, —.

Case 13: L. S.; female; age 8; admitted March 13, discharged June 11. March 13, admitted. A carrier. Culture, +. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 2, stock vaccine, 320 million. Culture, +. April 8, stock vaccine, 400 million. April 12, stock vaccine, 400 million. Culture, —. April 14, culture, +. April 23, culture, —. May 2, mixed vaccine, 300 million. Culture, +. May 6, mixed vaccine, 500 million. Culture, +. May 10, mixed vaccine 1,000 million. May 12, culture, —. May 15, mixed vaccine, 1,000 million. Culture, +. May 20, mixed vaccine, 1,400 million. May 21, culture, +. May 25, culture, —. May 29, culture, —. June 2, culture, +. June 4, since then culture negative on six trials. June 11, discharged. Culture, —.

Case 14: N. M.; female; age 11; admitted March 18, discharged May 21. March 18, admitted. A carrier. Culture, +. March 22, stock vaccine, 40 million. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. Culture, +. April 8, stock vaccine, 400 million. April 12, stock vaccine, 400 million. Culture, +. April 23, culture, +. May 2, mixed vaccine, 300 million. Culture, —. May 6, mixed vaccine, 500 million. Developed acute follicular tonsillitis at this time lasting three of four days. Culture, —. May 10, mixed vaccine, 1,000 million. Culture, —. May 15, mixed vaccine, 1,000 million. Culture, —. May 20, mixed vaccine, 1,400 million. Culture, —. May 21, discharged. Culture, —.

Case 15: A. W.; female; age 11; admitted March 18, discharged May 5. March 18, admitted. A carrier, throat and ear. Culture, +. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. Culture, —. April 8, stock vaccine, 400 million. Culture, —. April 12, stock vaccine, 400 million. April 14, since then five negative cultures. May 5, discharged. Culture, —.

Case 16: E. G.; female; age 9; admitted March 19, discharged June 11. March 19, admitted. A carrier. Culture, +. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million.

April 3, stock vaccine, 320 million. April 8, stock vaccine, 400 million. Culture, —. April 12, stock vaccine, 400 million. April 14, culture, —. April 23, culture, —. April 26, culture, —. April 28, culture, +. May 2, mixed vaccine, 300 million. Culture, —. May 6, mixed vaccine, 500 million. Culture, —. May 10, mixed vaccine, 1,000 million. Culture —. May 15, mixed vaccine, 1,000 million. Culture, +. May 20, mixed vaccine, 1,400 million. Culture, +. May 25, culture, +. May 29, since then six negative cultures. June 11, discharged. Culture, —.

Case 17: F. B.; female; age 13; admitted March 18, discharged May 27. March 18, admitted. A carrier. Culture, +. March 24, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3. stock vaccine, 320 million. Culture, —. April 8, stock vaccine, 400 million. April 10, culture, —. April 14, culture, +. April 23, culture, —. May 2, mixed vaccine, 300 million. Culture, —. May 6, mixed vaccine, 500 million. Culture, —. May 10, mixed vaccine, 1,000 million. Culture, —. May 15, stock vaccine, 1,000 million. Culture, —. May 20, mixed vaccine, 1,400 million. Culture, —. May 21, discharged. Culture, —.

Case 18: J. S.; female; age (?); admitted March 18, discharged May 27. March 18, admitted. A carrier. Culture, +. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. Culture, +. April 8, stock vaccine 400 million. Culture, —. April 12, stock vaccine, 400 million Culture, +. April 23, culture, +. May 2, mixed vaccine, 300 million. Culture, —. May 6, mixed vaccine, 500 million. Culture, —. May 10, mixed vaccine, 1,000 million. May 12, culture, —. May 15, mixed vaccine, 1,000 million. Culture, —. May 20, mixed vaccine, 1,400 million. Culture, —. May 25, culture, — May 27, discharged. Culture, —.

Case 19: L. E.; female; age 9; admitted March 13, discharged May 5. March 13, admitted. A carrier. Culture, +. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. Culture, —. April 8, stock vaccine, 400 million. April 12, stock vaccine, 400 million. Culture, —. April 23, since then five negative cultures. May 5, discharged. Culture, —.

Case 20: J. G.; male; age 11; admitted March 13, discharged May 27. March 13, admitted. A carrier. Culture, +. March 22 stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. Culture, —. April 8, stock vaccine, 400 million. April 12, stock vaccine, 400 million. April 14, culture, +. April 23, culture, +. May 2, mixed vaccine, 300 million. Culture, —. May 6, mixed vaccine, 500 million. Culture, —. May 10, mixed vaccine, 1,000 million. Culture, —. May 15, mixed vaccine, 1,000 million. Culture, —. May 20, mixed vaccine, 1,400 million. Culture, —. May 21, culture, —. May 27, discharged. Culture, —.

Case 21: E. S.; female; age 12; admitted March 18, discharged May 30. March 18, admitted. A carrier. Culture, +. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. April 8, stock vaccine, 400 million. Culture, +. April 12, stock vaccine, 400 million. Culture, +. April 23, culture, +. May 2, mixed vaccine, 300 million. Culture, +. May 6, mixed vaccine, 500 million. Culture, —. May 10, mixed vaccine, 1,000 million. Culture, —. May 15, mixed vaccine, 1,000 million. Culture, —. May 20, mixed vaccine, 1,400 million. Culture, —. May 25. Culture, —. May 29. Culture, —. May 30, discharged. Culture, —.

GROUP 3: Patients in whom less than two weeks had elapsed between their complete clinical recovery and the beginning of the vaccine treatment. Called "active carriers."

Case 22: J. B.; male; age 8; admitted March 19, discharged May 22. March 19, admitted. Active faucial diphtheria. Culture, +. March 19, antitoxin, 10,000 units. March 25, clinically well. Culture, +. March 29. stock vaccine, 40 million. April 3, stock vaccine, 80 million. Culture, +. April 8, stock vaccine 160 million. April 10, culture, +. April 12, stock vaccine, 320 million. April 14. culture, —. April 23, culture, +. May 2 mixed vaccine, 300 million. Culture, —. May 6, mixed vaccine, 500 million. May 8, culture, —. May 10, mixed vaccine, 1,000 million. May 12, culture, —. May 15, mixed vaccine, 1,000 million. Culture, —. May 20, mixed vaccine, 1,400 million. Culture, —. May 22, since then four negative cultures. May 28 discharged. Culture —.

Case 23: H. S.; male; age 14; admitted March 3, discharged May 5. March 3, admitted. Active faucial diphtheria. Culture, +. March 3, antitoxin, 10,000 units. March 4, antitoxin, 10,000 units. March 12, clinically well. Culture, +. March 22, stock vaccine, 40 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, 320 million.

Culture, —. April 8, stock vaccine, 400 million. April 10, culture, —. April 12, stock vaccine, 400 million. April 14, since then six negative cultures. May 5, discharged. Culture, —.

Case 24: B. R.; female; age 13; admitted March 13, discharged May 23. March 13, admitted. Practically clinically well. Culture, +. March 22, stock vaccine, 10 million. Culture, +. March 26, stock vaccine, 80 million. March 29, stock vaccine, 160 million. April 3, stock vaccine, 320 million. April 8, stock vaccine, 400 million. April 10, culture, —. April 12, stock vaccine, 400 million. April 14, culture, +. April 23, culture, —. May 1, culture, —. May 2, mixed vaccine, 300 million. May 6, mixed vaccine, 500 million. Culture, —. May 10, mixed vaccine, 1,000 million. May 12, culture, —. May 15, mixed vaccine, 1,000 million. Culture, —. May 20, mixed vaccine, 1,400 million. Culture, —. May 23, discharged. Culture, —.

Conclusions: 1. Chronic diphtheria carriers do exist. 2. The use of vaccines does have an influence in destroying the bacilli of chronic carriers. 3. The number of bacilli is markedly diminished by the use of vaccines even where they do not entirely disappear. 4. Diphtheria vaccines, in spite of the toxins they contain, can be used in comparatively large doses, without causing a rise of temperature or other evidence of a general reaction. 5. There seems to be no relation between the amount of local reaction and the efficacy of the treatment. 6. Large doses of the vaccines seem more efficacious than small doses. 7. It is necessary to get a number of consecutive negative cultures before a cure can be said to be effected.

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602 Perrin Building.

AN APPARATUS DESIGNED FOR THE PURPOSE OF GIVING AN APPROXIMATELY ACCURATE QUANTITATIVE HEARING TEST.*

DR. JESSE WRIGHT DOWNEY, JR., Baltimore.

In presenting an apparatus that I have designed and found of use in testing hearing it is obvious that the basic principle upon which its value depends is one universally accepted. I, therefore, shall make but small claim to originality, but shall rather endeavor to remind you of the accuracy of the quantitative tuning-fork tests from a practical standpoint.

I especially refer you to the valuable contribution concerning this subject: "Remarks On Tuning-fork Tests, Particularly in View of the Rate of Decrement," presented by Dr. Dundas Grant before the Ninth International Otological Congress (Boston, 1912), and published in the Transaction of that Congress.

The apparatus here presented, (Figure 1), consists of a C^2 tuning-fork (Hartman 512 d. v. s.)[1] tightly clamped and inclosed within a box from which leads a Y-shaped tube attached to a sensitive diaphragm (Bowles' stethoscope) set in front of the fork. The tuning-fork is set to vibrating by means of a rubber-tipped weight allowed to fall by gravity through a tube of known height (Figures 2 and 3). By having the tube placed slightly off the perpendicular an oblique rebound of the weight is obtained, which prevents the occurrence of a second impact of the weight against the fork. The note is clear, free from overtones and can be perceived by the normal ear for thirty seconds.[2]

To use the instrument, one ear-piece of the Y-shaped tube is placed in the patient's ear, the other in the ear of the physician and the fork is set in vibration by allowing the weight to drop through the tube, both the patient and the doctor thus receiving the sound under exactly similar conditions. The patient is instructed to say when the note is no longer heard and the duration of hearing is recorded on a stop-watch that has been started the moment the weight struck the fork. The duration of the note as further perceived by the examiner is also marked, and the result of the test is written thus:—e. g. —5"(25/30), the numeral denoting the *difference* in the duration of perception and being the important index; the fraction indicating the duration itself, defective and normal, and being of but secondary interest. The test is repeated several times and if the *difference* between the duration of the patient's and the physician's perceptions of the sound remains the same, the test may be considered accurate and the percentage of actual hearing-power for this particular note, under surrounding conditions, as compared to the examiner whose hearing is assumed to be normal, may be read off the table of percentage values, prepared for this apparatus.[3] (See Table.)

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*Presented as candidate's thesis to the twentieth annual meeting of the American Laryngological, Rhinological and Otological Society, Atlantic City, June, 1914.

1. The tuning fork used in this apparatus has been tested in the Physical Laboratory of the Johns Hopkins University by Prof. J. H. Anderson, and the percentage value computed according to the formulae advised by Dr. Dundas Grant. See Appendix.

2. An average. After hundreds of tests I have found a variation of from five to fifteen seconds in the duration of the normal perception of this note. It is the difference in time of perception between the defective and the normal ear which is of importance, and not the duration of the note; therefore, so long as this difference remains the same the duration of the sound is unimportant.

TABLE I.

RATIO OF AUDITORY PERCEPTION EXPRESSED AS PERCENTAGES.

Difference in time of hearing.	C^2 Fork. 512d.v.s.	Difference in time of hearing.	C^2 Fork. 512d.v.s.
0	100%	—8 "	3.6%
—1 second	66%	—9 "	2.3%
—2 seconds	43%	—10 "	1.5%
—3 "	28%	—12 "	0.6%
—4 "	19.5%	—15 "	0.1%
—5 "	12.5%	—20 "	0.002%
—6 "	8.2%	—25 "	0.0003%
—7 "	5.1%	—30 "	0.000000

After four years' use of this apparatus in a noisy clinic I feel convinced that it is superior to the other methods of quantitatively measuring hearing, (voice, watch, Politzer and similar acoumeters). And although it by no means eliminates the shortcomings of these methods, and is open to the same criticism that it tests but a restricted portion of the basilar membrane, it furnishes one index of more constant and uniform value for recording and comparing, from time to time, variations in audition.

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[3] I test a patient under examination, noting 5"(15/20)(20/25)(25/30). The duration of hearing has markedly varied but the difference in the duration of perception has remained the same. By reference to the table, I find that the patient's hearing-power is reduced to 12.5 per cent as compared to my hearing power for the same sound, heard under exactly similar conditions. Under treatment, the patient improves and my tests show,—3"(20/23)(17/20)(27/30.) The patient's hearing-power for this same note will have advanced to 28 per cent as compared to my hearing which I assume to be normal.

and thereby the progress or retrogression of a case under treatment. The ratio, or difference, between defective and normal perception of the duration of the sound is almost always most accurately preserved, and this as we know is *the* important factor in estimating the percentage of actual hearing-power for the note of a tuning-fork.

If the decrement of vibration of a tuning-fork took place in arithmetical progression, so that the duration of perception corresponded to the actual hearing-power, we would have a very simple way of calculating the amount of hearing for a certain tone. As a matter of fact, the decrement takes place by a diminution of the amplitude of vibration in geometrical progression which is governed by the amplitude of vibration of the par- the beginning but slower toward the end. Accordingly the actual power of hearing is much smaller than the duration of hearing.

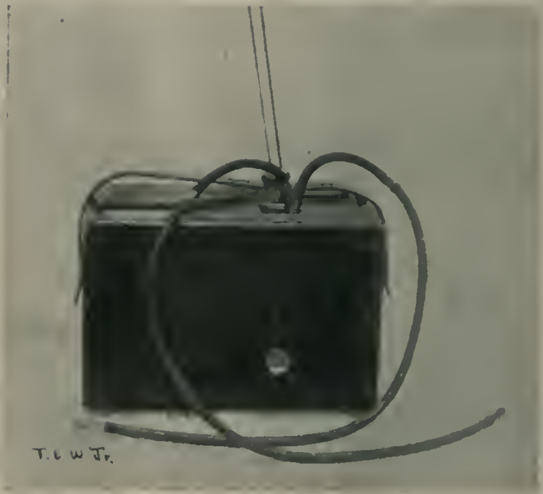

Figure 1. Photograph of "tone-meter" closed.

Otology is certainly indebted to Dr. Dundas Grant for his scientific and accurate method of ascertaining the percentage values of the auditory perception of the notes of tuning-forks. It has seemed to me that his investigations can be made of great practical value in establishing a system of quantitatively testing hearing which, if not uniform, may at least be generally intelligible. May I, therefore, briefly quote from the essay to which I have previously referred?

The ratio of acuteness of hearing, says Dr. Grant, does not depend in any way on the initial loudness but on the difference of time of hearing and on the constant K relating to that fork.[4]

"The experimental determination of the constant *K* for any given tuning-fork can be carried out at any physical laboratory and the calculation can be made by anyone accustomed to use logarithms in the course of his business." (Grant, page 155, Transactions Ninth International Otological Congress.)

The constant *K* has been determined for the fork used in my "tone-meter" and from it the table of percentage values constructed; therefore, should I read in an article by Dr. Grant, that a patient's hearing for the 512 d. v. s. showed a difference

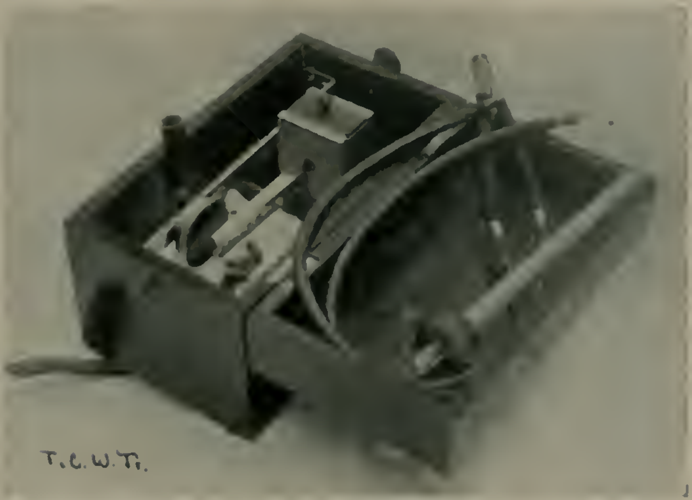

Figure 2. Photograph of "tone-meter" open.

of −5 seconds or 5.9 per cent actual hearing-power for this note, by a reference to my own table I should find that this corresponded to −7 seconds with my fork.[5] Certainly the use of the tuning-forks in the way suggested by Dr. Grant is more than "a step toward accuracy," as he modestly terms it, and should be universally understood.

The advantages of the "tone-meter" over the use of the tuning-fork in the ordinary way have seemed as follows: 1. The constant *K*, necessary in the determination of the percentage of hearing-power, once being ascertained, is rendered constant for the fork in use. 2. The patient and the physician receive the sound under precisely similar conditions. 3. The ratio between the patient's and the physician's perception-duration of the note is more exactly preserved; and this is not only of practical value as a means of recording the result, but the important and essential factor on which is based the determination of the actual hearing-power as compared to that of the examiner's for the same sound. 4. The method of setting the fork into vibration is practically uniform.

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[4] The "constant K" is the term used to denote "the time rate of the decrease of the logarithm of the loudness."

[5] Grant's tuning-fork 512 d. v. s., constant K = 0.6294. Tuning-fork (512 d. v. s.) used in my "tone-meter," constant K = 0.415.

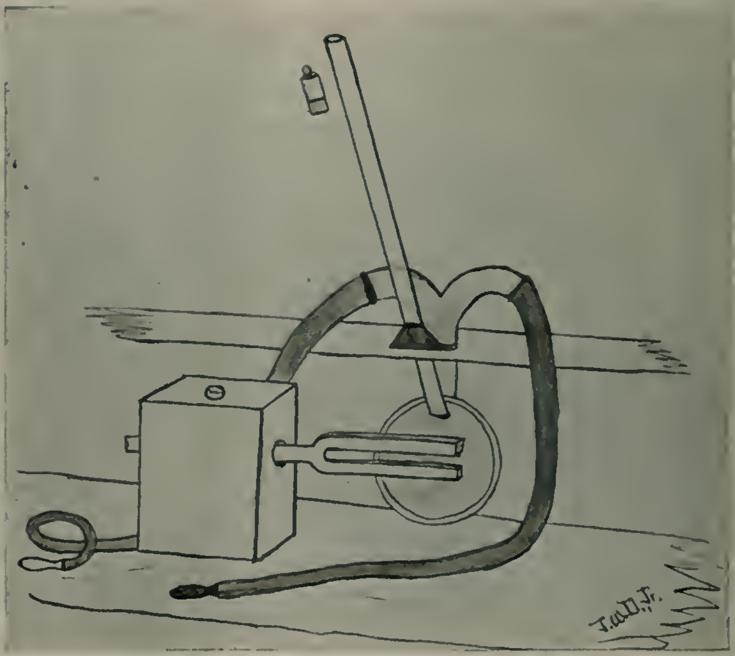

Figure 3.

Its advantages over the other method of quantitatively measuring audition: 1. It gives a more constant and uniform standard of value under adverse external conditions: i. e., noisy surroundings. 2. It is less liable to be misinterpreted by the patient whose answers are more likely to be definite and to the point.

Finally, let me emphasize the limitation of this apparatus. I have found it superior to the voice, the watch and the Politzer acoumeter. It is a plea for the use of the tuning-fork quantitatively as well as qualitatively, that is all.

I have under construction an apparatus to use a C (128 d. v. s.) and a C^1 (256 d. v. s.); the C^2 fork used in this apparatus being too high in pitch to judge accurately the hearing for speech.

There is also the question of the conductivity of the tubes, and what part of the perception of the sound may be due to direct transmission to the auditory nerve through the bone and not through the medium of the drum-head and ossicular chain. I am at present carrying out some experiments in regard to this, on which I hope to report later.

APPENDIX.

T_0-T Seconds	I/I_0	I_0/I or hearing power	T_0-T	I/I_0	I_0/T or hearing power
2	2.294	0.436	9	41.9	0.0239
3	3.374	0.288	10	63.4	0.0158
1	1.514	0.660	12	145.6	0.00687
4	5.260	0.191	15	505.0	0.00198
5	7.970	0.125	20	4030.	0.00024
6	12.08	0.0828	25	32100.	0.00003
7	18.26	0.0548	30	255000.	0.000004
8	27.70	0.0361			

T_0 is time a normal ear can hear fork.

T is time a defective ear can hear fork.

I_0 is intensity of sound when normal ear ceases to hear it.

I is intensity of sound when defective ear ceases to hear it.

$I = I_1 \; e—KT$

$I_0 = I_1 \; e—KT_0$

K = 0.415.

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November, 1913.

529 North Charles Street.

Alterations in the Blood in Hay-fever. E. E. ROBERTS, *Brit. Med. Jour.*, May 30, 1914.

In hay-fever we have a decrease of the hemoglobins, a polycythemia, and an increase in the large mononuclears and eosinophiles. We also find vacuolated and degenerated leucocytes and some leucopenia. Asthma symptoms are accompanied by increased esinophilia. This blood picture in modified form persists in the intervals during the attacks. ED.

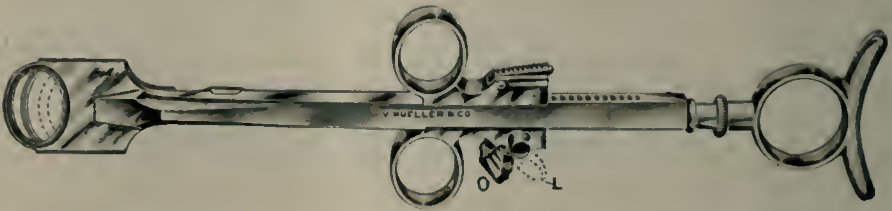
NEW TONSILLECTOME.

Dr. Harvey B. Searcy, Tuscaloosa, Ala.

The illustration shows a tonsil instrument that I had made in April, 1913, for use with the "Sluder technic."

In Dr. Sluder's instrument the fenestra made by the encroaching blade is crescent-shape and the middle of the convex edge of the blade engages the tonsil first, while the upper and lower part of the tonsil is not engaged until the tonsil is cut almost through. Occasionally part of the upper or lower tonsil tissue is left, necessitating more instrumentation. I have also found the hemorrhage to be too profuse.

The Beck-Mueller tonsillectome I have found better, but frequently the snare-wire gives trouble by breaking, slipping, or is not properly adjusted in the groove made for it, and when not properly adjusted will be pushed ahead of the tonsil in operating and only a part of the tonsil removed. Then, too, when the tonsil is once grasped by the snare-wire the cutting has to be completed, as it is impossible to release the tonsil for a better placement, and a new wire is necessary for each tonsil to insure a smooth fit in the groove of the instrument.



I had a dull blade made to take the place of the wire in the Beck-Mueller instrument and find that it eliminates the abovementioned disadvantages. The opening is always oval, engaging the whole tonsil, and with the dull blade and ecraseur a slow enucleation can be done with very little hemorrhage. By having the back of the sliding blade bevelled the tonsil is removed smoothly from the tonsil fossa while it hangs in the instrument and is removed from the mouth with it. By sliding the blade back to the original position the instrument is ready for the other tonsil, and where assistants are scarce the simplicity of adjustment saves considerable time and worry at a time when the operator is too busy to adjust instruments.

EDITORIAL DEPARTMENT

DEFECTS OF SPEECH.

EDITED BY
DR. G. HUDSON-MAKUEN,
PHILADELPHIA.

ON VOICE CULTURE.

One of the most notable of the recent books on voice culture is that from the pen of Mr. W. Warren Shaw, published by J. B. Lippincott Company, and entitled, "The lost vocal art."

Some of us may not know that the vocal art has been lost, but Mr. Shaw appears to make the fact very clear, and he tells us both when and how it was lost, and best of all how it may be regained.

According to Mr. Shaw, the vocal art began its wanderings when Garcia discovered the laryngoscope and taught us how to see the vocal mechanisms in operation. Up to this time, the old Italian masters, blissfully unconscious of the action of the vocal cords or of the various methods of breath-control, succeeded in developing and elaborating voices that have never since been equalled and that would put to shame the results attained by teachers of the present day. Strange to relate, these old masters were successful, not in spite of, but largely because of their ignorance of the physiological facts pertaining to voice culture, and their teaching began to deteriorate when they first saw the vocal cords in action and when, lured on by the little interesting knowledge thus obtained, they were led "like lambs to the slaughter" to study other physiological processes, such as the best methods of controlling the breath, thinking in their innocence that all this would make them better teachers and thus increase their usefulness. Evidence is given to show that Garcia himself, before he passed away, fully recognized the limitations of his discovery as applied to artistic voice-culture, and made but little use of the instrument in connection with his teaching.

The laryngoscope, according to Mr. Shaw, is an instrument par excellence for the physician, rather than for the singer. The physician may safely and profitably study the physiological activities of the vocal mechanisms during voice-production, but for the singer to do so to any great extent can result only in disappointment and disaster. As a proof of this theory Mr. Shaw points to the failures resulting from the modern physiological schools of voice-culture, and he claims that there have been absolutely no successes. The vocal art so highly developed by the old masters has been practically lost because modern teachers have endeavored to supplant the older empirical methods of voice-culture with the newer physiological, and as they supposed, more scientific methods, forgetting the important fact that artistic singing is more largely a psychological process than it is a physiological one. Moreover, in the making of a singer, according to Mr. Shaw, and in the development even of hs peripheral mechanisms, psychological methods must predominate. In other words, it is always wrong for the singer to seek results by thinking primarily of the things that produce the results. This is the method of the physiological school which has resulted in so many diastrous failures.

The resurrection of the lost vocal art, Mr. Shaw tells us, must come through the idealization of tone and the striving for results directly, rather than indirectly through the physical mechanisms. The singer cannot successfully idealize a tone and think of the action of any muscle or group of muscles at the same time, and any attempt to do so is necessarily subversive of good results.

The normai, and therefore, the scientific, method of voice-production is first to think or idealize the tone, and the attempt to produce this idealized tone will tend to call up the requisite physical activities for its production.

The great singer, to be sure, is always largely endowed with a musical instinct and a musical mind, and these so-called psychological characteristics are of really greater value to him than his physical endowments; but on the other hand may we not be carrying the psychological theory too far when we aim to exclude from the singer a careful study of the physiological processes of his art?

It would seem that physiological methods must be used as an aid in the correction of defects of voice and speech, but when no marked abnormalities exist and when artistic results are to be attained in a comparatively and physiologically normal individual, psychological methods should be given precedence. As Mr.

Shaw points out, the best all-round physical development for the singer who is physically normal must come largely through his efforts to idealize tone, and to meet the ever-increasing demands of his own ear, made more and more exacting and critical through his work with the teacher.

To idealize tone simply means to call up an ideal tone in the special auditory tone center of the brain and to actually hear it in the imagination before it has issued from the throat. This is the normal physiological and psychological process of voice-production. The idealization of tone in this sense is what furnishes the stimuli necessary for the production of tone, and the more nearly perfect the idealization, the more nearly perfect will be the tone and the more uniform and harmonious will be the resultant physiological or neuro-muscular development.

The great singer, therefore, is the one who has learned to think and to idealize great song, and he is the one who has acquired the ability through long practice with an expert teacher to mentally and physically hear his own voice aright. He comes to be finally, then, his own critic and teacher. Physiologically, he is a highly developed organism, working under the immediate direction of a highly developed and artistic mind.

The keynote of Mr. Shaw's teaching, as outlined in his book, is the importance and absolute necessity of subordinating the physiological to the psychological in artistic singing. The singer must aim for results rather than for special physical activities, and his attention must be directed to the results to be attained rather than to the methods of attaining them. The physical activities required in artistic singing can better be aroused and developed through the idealization of results rather than through the method of directing the attention to the processes themselves.

Mr. Shaw is himself a good example as well as a good exponent of his psychological teachings, and he is more nearly right in respect to this phase of the subject than he is in respect to the physiological phase of it.

There are many who will not agree with him, for instance, when he says that in singing, the diaphragm is a muscle of inspiration and not a muscle of expiration; and physiologists or physicists will have difficulty in understanding how Mr. Shaw can make it possible for the diaphragm to contract strongly and the abdomen to retract at one and the same time, as he says they do during the more or less full inhalation preceding the tone-production. Many of us also will fail to understand how it happens physiologically that in the full inhalation preceding tone-production, the abdomen is slightly drawn in, and in the emission of tone and necessarily also in the emission of some breath, the abdomen should be further retracted.

As Mr. Shaw says, Mendel was, of course, wrong in making the diaphragm an inspiratory muscle and advocating the protruding of the abdomen during a forced inhalation, but Mendel was at least consistent, because if the diaphragm is an inspiratory muscle, in full breathing the abdomen must protrude, because the diaphragm is the one muscle that can produce this particular phenomenon. . The fact is, as I have pointed out on various occasions, that the diaphragm is not an inspiratory muscle in the production of voice, and there is, as Mr. Shaw very properly says, a retraction of the abdomen in full inhalation; but the diaphragm is an expiratory muscle in the production of voice and it clearly comes into more or less action during the emission of the tone with a resultant protrusion of the abdominal walls.

A Quick and Effective Remedy for Otalgia. Adolf Schwartz, *Monatschr, f. Ohrenh.*, Heft. 3, 1914, p. 334.

The writer finds this remedy of advantage for pains in middle ear canal, in otalgia, tinnitus and when changing dressing. This wonderful "arcanum" has the poetical name of oleum sinapis aethereum. The writer, a military surgeon, had to travel all the way from the small village of Gravosa, not far from the scene of the Balkan war, to Vienna in order to prove at Prof. Urbantschitsch's Ear Clinic that the mere smell of oleum sinapis aethereum stopped ear pains in forty-four cases. The exact histories and symptomatology of the latter were given by the writer in a lecture before the Austrian Otological Society, February, 1914, and are published in the above article. Glogau.

BOOK REVIEWS.

Handbuch der speziellem Chirurgie des Ohres und der oberen Luftwege. Edited by DRS. L. KATZ, H. PREYSING AND F. BLUMENFELD. Band 2, Lieferung 2; Band 3, Lieferung 5-6. Verlag Curt Kabitzsch, Wuerzburg, 1914.

"Functional tests of hearing," by Dr. Gustav Bruehl: Recent editions on labyrinthine physiology and pathology add important chapters to this field. Prof. Bruehl covers this practical and vital fundament in his usual classic manner.

The method of using the Bezold tone-series and the differential diagnosis of this test are minutely described. The Galton whistle, Schaefer reasonators, Koenig cylinders, Struycken monochord, Gradenigo special fork, Hartmann diagrammatic tone fields, Barany noise apparatus are all given careful consideration. Nystagmus is presented in all its phases.

This is a splendid contribution and a most valuable reference monograph.

"The surgery of the external nose," by Prof. Otto Seifert is exhaustively presented and well illustrated and includes the latest form of therapy (Finsen light, radium, carbon dioxide snow, etc.).

The second monograph is on "Operations on the accessory sinuses of the nose," by Prof. Boenninghaus. Following an introductory chapter on differential diagnosis of inflammatory diseases of the accessory sinuses the author proceeds in a detailed description of the various operations for their relief.

These include in order: The various intra-nasal methods of opening the maxillary antrum; external methods through face via canine fossa; the facio-nasal method (Caldwell-Luc); modifications of the Gerber, Denker, Friedrich, Kretschmann, etc.

Then follows a detailed description of the technic of opening the frontal sinus both by the external and intra-nasal methods, and the various modifications suggested for this technic.

Operations on the ethmoid labyrinth are next considered and a concluding chapter treats of the operation on the sphenoid cells.

An independent chapter is devoted to a consideration of operations on the accessory sinuses not inflammatory nor suppurative in character, such as mucocele, cysts, polypi, osteoma and also the more radical surgical tecnnic employed in removing malignant tumors of these areas.

Intra-cranial complications of extension from the accessory sinuses and their surgical treatment are also carefully considered.

This monograph is well illustrated with many original cuts.

The monograph on "Intra-nasal surgery on the nose," by Dr. L. Katz, first considers the various methods of rhinoscopy, and the important subject of intra-nasal hemorrhage, turbinectomy, removal of various types of polypi and other intra-nasal tumors, galvano-cautery, surgery of the turbinates, resection of the nasal septum and its numerous modifications, disposal of reflex neuroses in the nose, surgery of tumors of the nose both benign and malignant and their intra-nasal removal and gives an extensive contribution on the intra-nasal treatment of ozena, tuberculosis and endonasal syphilis, and a concluding paragraph on synechia, atresias and fractures of the nasal bones.

This monograph discusses this field of intra-nasal surgery minutely and includes a remarkably well-executed series of color plates and microscopic sections illustrative of the pathology of the parts discussed.

The significance and importance of "Orbital complications in nasal accessory sinus affections" is clearly defined in an exhaustive monograph by Prof. Hoffmann

Much space is devoted to a careful description of the anatomy and topographical relations of the several sinuses to the orbit, to vascular and nerve distribution, and their relations to anomalies of the sinus in size, shape and position

Special mention should be made of the splendid illustrations that accompany this monograph and the novel form of the series of stereoscopic plates to clinically illustrate the path of lesions of the orbit.

"The hypophysis, its pathology and operative treatment is the caption of the next monograph by Prof. A. Kuttner. The monograph is especially valuable for reference, as it describes the technic of the various types of operation undertaken to expose the hypophysis and remove tumors and pathological conditions of this tissue.

"The surgery of the tear ducts" is discussed by Gustav Ritter and is elaborated into a very formidable monograph. Appended to this is a bibliography of this subject-matter to date.

The concluding monograph of volume 3 is the "Surgical disposal of malignant neoplasms of the superior maxilla," by Dr. Heile.

While this field is not strictly to be considered within the scope of the rhino-laryngologist, it is nevertheless so closely identified with the surgery and pathology of our domain that it may be well given space in this important hand-book.

Each new monograph of this series as issued offers many surprises and excites greater admiration for this splendid monumental publication. There is nothing in the entire field of oto-rhino-laryngology that has ever been published which can approach it in importance, scientific strength, completeness and elaboration of publisher's art.

Development and Anatomy of the Nasal Accessory Sinuses in Man. Observations based on 290 lateral nasal walls, showing the various stages and types of development of the accessory sinus areas from the sixtieth day of fetal life to advanced maturity. Dr. Warren B. Davis, Corinna Borden Keen Research Fellow of Jefferson Medical College, etc., Philadelphia. Pp. 172, with 57 illustrations. W. B. Saunders Co., Philadelphia, 1914.

We are glad to see this evidence of independent research by an American colleague presented in an able volume entitled to take its place with the works of Onodi, Logan Turner and others.

Dr. Davis has collected and carefully studied large preparations of sections of the accessory sinus areas in the various stages of development from the early fetal to mature adult periods, special emphasis in this research being given to the study of specimens showing the conditions present during the period of childhood.

The difficulty of obtaining ample anatomical material for this purpose has been met by the development of a technic by the author by which the accessory areas could be removed *en masse* at the time of the post-mortem examination and still allow reconstruction of the face without marked disfigurement.

The total number of cases studied in the preparation of this work was 145, or 290 lateral nasal walls and accessory areas.

This monograph will, no doubt, be of considerable value in a careful study of accessory sinus anatomy and embryology and of much assistance in the further development of the field.

Operationen am Ohr. Die Operation bei Mittelohreiterungen und ihren intrakraniellen Komplikationen. Fuer Aerzte und Studierende. By Dr. B. Heine, Professor and Director of the K. Universitaets-Ohrenklinik und Ohrenpoliklinik, Munich. Pp. 232, with 29 illustrations in the text and 29 plates. Verlag, S. Karger, Berlin, 1913. Price, Mk. 8.80.

To readers familiar with the first edition of Heine's "Operations on the ear" this enlarged third edition will indicate the remarkable advance made in this field since the appearance of the first edition in 1903.

The operative technic of the labyrinth, semi-circular canal, dural and extra-dural abscess, and the disposal of the involved uvula bulb and vein in thrombosis and inflammation is here considered graphically and in original illustration.

Much emphasis is placed upon purulent affections of the middle ear traced through the oval and round windows, through the horizontal canal and involving the labyrinth, and the sinus, the character of pus invasions of the labyrinth, and the importance of radical labyrinthine surgery.

In citing the literature in this field the author seems to confine himself almost exclusively to German authorities.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular Meeting, May 7, 1914.

DR. J. H. GUENTZER, CHAIRMAN.

SYNOPSIS OF DR. FREUDENTHAL'S PAPER.

(*Continued from page 764, August, 1914.*)

Deviated nasal septa or spurs, if they materially interfere with respiration, should be removed, and this can be done in almost any stage of tuberculosis. Adenoids should be curetted, but the tonsils should not be operated upon if the disease has been positively established. The writer had known of several fatalities which occurred in patients who had been sent away for recuperation and were operated upon contrary to his advice, dying of *pulmonary* hemorrhages in from three to eight days after the tonsillectomy.

When actual tuberculosis of the larynx has been established, the treatment of the condition is one of the most difficult that the laryngologist is confronted with, though it is well worth the work and the pains required, for the progress in the therapy of this condition has been marvelous. There is a great need for satisfactory sanatoria which will receive tubercular subjects with laryngeal complications. A prominent German scientist says that that hospital is the best which admits the worst cases, and with this statement the writer heartily coincides. The general treatment of the incipient or early cases often in itself effects a curative effect. The rest-cure, especially of *the voice*, the good air, and suitable nourishment, often result in the healing of slight lesions, superficial erosions, infiltrations, etc.

A more active therapy is indicated when there are ulcers, papillary outgrowths, localized and diffuse infiltrations. No matter what the conditions of the lungs, two requirements must be met,—the cough must be stopped and the dysphagia removed. The methods of accomplishing this must depend upon the experience and judgment of the physician. In some instances major operations are proposed, in others, partial or total laryngectomy. Theoretically, this is the correct method of procedure, but practically it has not proved a success. The majority of patients operated on in this way succumb quickly to pneumonia or other complications, and only a few recover from it. Even simple tracheotomy, which has been recommended as a prophylactic measure is of little value. It should only be performed on account of dyspnea which cannot otherwise be relieved.

One is therefore limited to minor surgical measures within the larynx. It is well known that the disease manifests itself frequently on the antero-posterior wall and on the anterior wall, i. e., the epiglottis. Deep ulcerations and infiltrations may persist for a long time on the lateral wall without causing dysphagia or other serious trouble, but difficulties arise as soon as the arytenoids or the epiglottis become involved, and these conditions must be overcome or the patient is lost.

In severe infiltrations of the epiglottis, all efforts toward alleviating a pronounced dysphagia will fail on account of the inability to reach the ulcers low down in the larynx, the epiglottis occluding the introitus laryngis, or because they have formed on the laryngeal surface of the flattened epiglottis and cannot be reached by any application. Under these circumstances, the best that can be done is to amputate the epiglottis, either with some cutting forceps or with the cold snare. This operation is simple and enables one to treat the lesions lower down. Occasionally, when the epiglottis is the only part affected, improvement is noticed immediately. When ulcers are present lower down, they have to be especially treated.

In the treament of ulcerations, the first thing to strive for is to remove the pain on deglutition and incidentally relieve the laryngeal cough To accomplish this. one must produce local analgesia of long duration, painlessness of the parts lasting for several days. This is secured by the employment of orthoform, or anesthesia, applied as a powder or in an emulsion, the writer's formula for the latter being: Orthoform, 6,00; menthol, 0.5-5,00; formin, 0,50; ol. amyg. dul., 15,00; pulv. acaciae, 10,00; aquae ad, 60,00 M. f. emulsio.

The important points to be remembered in applying the emulsion or the powder are that (1) the parts to be treated must be clean and (2) that drugs must be applied in such a manner that they will remain on the ulcer. If too much is applied at one time it will be coughed up. A drop that remains on the spot and is absorbed will do more good than a pint that is coughed up. Such medication alone, if used correctly, will often produce cicatrization of an ulcer.

In case the ulcers do not heal under analgesic treatment, resort must be had to caustics,—chlorid of zinc, nitrite of silver, argyrol, etc., or the galvano-cautery, followed within half an hour by the insufflation of orthoform in powder or by emulsion. In deep, solitary ulcers, the galvano-cautery occasionally yields good results, but for multiple ulcers it cannot be recommended. The reaction after the galvano-cautery is sometimes unpleasant and unavoidable. Fulguration has given some encouraging results.

Suspension laryngoscopy has opened up a new field for therapeutic endeavors. With it, the larynx is opened widely to direct inspection and an excellent opportunity is afforded to reach its different parts, especially the posterior wall which is so frequently affected. One can also curette thoroughly all ulcerations, which, after all, is the most satisfactory surgical method. The writer has done this frequently with excellent immediate results, although the ulcers recur and have to be curetted over and over again. The procedure is not painful and the dangers connected with it are practically nil. There is, however, danger of edema of the larynx, and for this reason it is often wise to proceed slowly and to curette only some of the most troublesome parts at the first sitting. After doing curettage under suspension laryngoscopy, it is best to apply a strong caustic, such as the galvano-cautery or pure lactic acid.

Any necessary excisions of infiltrated portions or of granulations can best be accomplished under suspension laryngoscopy. The writer has been amazed at the ease with which inter-arytenoid papillary out-growths can be removed by this method.

Very helpful are the different rays used therapeutically during recent years,—the actinic rays, the high frequency current, and the rays emanating from radium One of the first orders given to a patient is that he should keep in the sun as much as possible, in the winter. In the summer the early morning hours are recommended, up to nine or ten o'clock. As a substitute for the sun, the electric arc light can be used and its chemical or actinic rays applied externally to the affected parts.

In cases in which none of the therapeutic measures indicated avail, injections of alcohol have sometimes given relief. This was first suggested by Rudolph Hoffman, whose aim was to produce analgesia of long duration. He recommends an 85 per cent alcohol at a temperature of 45° C or 112° F. After the subsidence of the initial pain, which is sometimes quite severe, another injection is immediately made. Hoffman uses a strong, but somewhat blunted needle, as it avoids the blood vessels and is less liable to break.

The treatment and supervision of laryngeal tuberculosis in private practice is difficult and sometimes impossible, but in the milder cases much can be accomplished.

A successful practitioner ought to be able to cure at least 50 per cent of his patients afflicted with tuberculosis of the larynx in any stage of the disease. Optimism is nowhere so much indicated as in the therapy of tuberculosis, for it greatly assists the physician as well as the patient.

DISCUSSION.

DR. CARTER thanked Dr. Freudenthal for bringing this very important subject before the section, for while we may not introduce anything very new in the way of diagnosis, prognosis, or treatment, still we have opportunity to emphasize those points which have been found most useful in treating this protean disease.

As to the question of climate, which is the first thing that occurs in the matter of treatment, it is generally conceded that a fairly cold climate of moderate altitude and fairly free from dust is the ideal climate for a laryngeal case. Such cases do not stand dust of any kind; it keeps up the cough and makes it very much worse. All treatment must be directed against the cough, for the cure of tuberculous laryngitis is obtained after all, not so much by the treatment as by the rest. The constant coughing and hacking keeps up the irritation, and no rest is obtained. Therefore, the best method of controlling the cough must be considered. The cough in laryngeal cases is almost always annoying. When the inter-arytenoid sulcus is much involved the slightest thing will start the cough. Then, the pulmonary condition has much to do with the cough. We must find out the controlling element and direct our treatment to that. Prevention is the most important point of all in the treatment of tuberculous laryngitis. There is nearly always a catarrhal condition in the tuberculous cases, and this catarrh should be carefully attended to.

There are no positive early signs of laryngeal tuberculosis. For that reason, one should pay particular attention to the condition of the upper air passages, especially a catarrhal condition of the larynx.

Dr. Carter said that the question of the cough recalled his early experiences on the staff at Bellevue Hospital, when he saw many of these laryngeal tuberculosis cases. They were very interesting, and the patients were kept in the wards as long as possible, for the purpose of studying them. The method adopted for controlling the cough and diminishing the laryngeal irritability was very effective. It consisted in the use of a zinc inhaler on which was sprinkled 10 drops of a mixture of beechwood, creosote, chloroform and alcohol. This was used every hour or two during the day, and frequently at night. It certainly diminished the coughing, and in that way helped to cure the laryngeal tuberculosis,—or at least it ameliorated the suffering of the patients, for most of them were advanced cases.

As to the local treatment, Dr. Carter said that he had tried almost everything that had come under his observation. He could not exactly agree with Dr. Freudenthal regarding the use of powder in laryngeal tuberculosis, for it seemed to irritate the larynx and cause more coughing. Powder does not have any local effect until it has become a solution with the secretion in the larynx. Most of the powders used are insoluble or slowly soluble, and do not remain in the larynx long enough to have any effect. The treatment which he has found most useful is formaldehyd, two to four per cent, applied after cleaning off the parts with cotton pledgets. This is somewhat irritating, and sometimes it is necessary to use cocain before applying it.

Dr. Carter said that he does not approve of the use of cocain in laryngeal tuberculosis cases any more than is absolutely necessary, for there is always a certain amount of edema following its use, and stronger and stronger solutions have to be used.

Operative procedures should be limited to those which are of the sthenic type, especially those cases where the tubercular formations are circumscribed and in the curettage of old indolent ulcers on an indurated base, and in unilateral tuberculosis, that will allow the removal of as much tissue as possible and leave one side of the larynx in good shape.

Dr. Yankauer said that several years ago he had showed to the members of the Section an apparatus which he had devised which enabled the patient to medicate his own larynx. This was done at the suggestion of an internist, for the purpose of applying solutions and emulsions to the larynx in tuberculous cases, so that they could nourish themselves better. It consisted of a tube bent at right angles at one end and fitted to the patient's mouth with a small flange of adhesive plaster, so that when the patient introduced it into his mouth, the flange rested against the teeth, and when the fluid was injected it would reach the larynx. This device has been used a good deal since that time, and it was no doubt familiar to most of those present.

He had been trying to use a modification of this device which has succeeded well, and had been much encouraged to continue this work. He had used it with a patient who had a marked tuberculosis of the epiglottis; half of the epiglottis had disappeared, and the ulceration extended along the side of the tongue almost to the front of the mouth. Most of the ulcerations were healed and cicatrized when the patient died of other complications.

(To be continued.)

IN MEMORIAM.

Dr. Edward Pynchon died at his home in Chicago, August 28th, in the sixty-second year of his life, of uremia, after a brief illness.

Dr. Pynchon was a graduate of the Eclectic Medical Institute, Cincinnati, 1873; of the Medical College of Ohio, Cincinnati, 1876; a member of the American Academy of Ophthalmology and Oto-Laryngology; and professor of rhinology, laryngology and otology in the Chicago Eye, Ear, Nose and Throat College.

In the death of Dr. Pynchon THE LARYNGOSCOPE loses one of its most valuable and ardent collaborators and the oto-laryngological profession an active, earnest and indefatigable worker.

His mechanical ingenuity was a recognized feature of every national oto-laryngological meeting at which his models of new instruments and apparatus were demonstrated.

He was a practitioner of the old school who depended largely on practical observation and common sense in the pursuit of his chosen field.

He was a frequent contributor to oto-laryngological literature and among his more important contributions we mention: "The bête noir of the vocalist," "The degenerate tonsil," "Directions for the control of nasal hemorrhage," "Nasal bougies and drainage tubes," "New mechanical saw for intra-nasal operations," "New nasal speculum," "New nebulizing device," "Pneumatic massage in aural practice," "Surgical correction of deformities of the nasal septum," "Technic of tympanic inflation," "Tonsillectomy by electro-cautery dissection," and "Tonsillectomy in children under general anesthesia—a hospital operation."

We shall miss his genial companionship, his practical counsel, his stimulating energy and his loyal support as a friend and co-worker in practice and medical journalism.

We extend our sympathies to his bereaved family.

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to The Laryngoscope.)

THE DEAF CHILD—A PLEA FOR CO-OPERATION.

Dr. Max A. Goldstein, Saint Louis.

Over twenty years ago I returned from two years of post-graduate study abroad, impressed not only with the achievements of otologic surgery and pathology, but with the new impetus that had been given by a few masters in this field to the education of the deaf. Urbantschitsch and Politzer in Austria; Bezold and Lucae in Germany; Mygind in Denmark; Gradenigo and Ferreri in Italy; Menier and Moure in France; Toynbee, Love and Yearsley in England.

I had been granted the special privilege of close study of the method suggested by Urbantschitsch for the re-education of the partially impaired auditory nerve, and followed with much interest his practical work in the Oberdoebling Institute for the Deaf in Vienna. Before returning home I visited the Margate School for the Deaf with Dundas Grant in London, and had the pleasure of demonstrating the Urbantschitsch system for the first time to Mr. B. Thornton, the head master at Margate.

On my return home I found an opportunity for developing this oral system of training at the St. Joseph School for the Deaf in St. Louis. After two years of painstaking practice with a class of about sixteen pupils, I presented the practical results of the Urbantschitsch method, used in conjunction with the usual training of the deaf then in vogue, at the meeting of the American Academy of Ophthalmology and Oto-Laryngology in St. Louis in April, 1897. This was the first presentation of its kind submitted to a medical assembly in America; it demonstrated two important features: First, that the otological profession had never assumed their share of the responsibilities in the important question of the training of the deaf, a field which is as much legitimately a part of otology as is the evolution of the mastoid operation, or the pathology of the labyrinth. It further proved that the education of the deaf was no exception to the rule of evolution, and that step by step progress was being made in the development of this department of educational work, as well as in the training and development of the normal child.

It cannot be gainsaid that progress in the education of the deaf child by a system like that advanced by Urbantschitsch must, of necessity, be very slow and also limited in scope. Its application is possible only in a selected group of pupils where some remnants of audition are still retained. It cannot be applied in the training of a totally deaf child, or even in the case of an adult whose hearing has been lost.

The Urbantschitch method of restimulation of the auditory nerve by aid of the human voice received a further impetus by the researches of Bezold. The "continuirliche Tonreihe," (continuous system of tuning forks) was utilized by Bezold to determine the amount of hearing in each pupil whose auditory defect was sufficiently grave to require a special form of education. Bezold specified empirically his so-called "tone islands" by means of which a classification of the degree of deafness of each pupil was made possible. All pupils tested by the "continuirliche Tonreihe" whose hearing was less than that of the prescribed limitations of the tone islands (A of the middle register to G of the second octave above middle C) were designated as physiologically unqualified for education by any of the systems which are to-day recognized among the teachers of the deaf as oral methods.

To-day all progressive educators of the deaf recognize the importance of utilizing every remnant of hearing in the deaf child or adult, and all modifications of oral or auricular methods are a valuable adjunct in the education of a large percentage of deaf pupils. The results obtained by auricular methods are proportionately dependent on the amount of hearing in each pupil so trained.

There are three practical subdivisions or groups to which pupils may be assigned for auricular exercises. The first group includes pupils in whom the remnant of hearing is so slight that they are enabled to distinguish only the sounds of the voice in sustained vowels at close range to the ear. In this class of pupils experience has proved that the application of auricular methods is of but little avail. Occasionally in exceptional cases, however, marked improvement in the hearing-power has been noted and for this reason every pupil of this group should be given every possible chance.

The second group includes pupils who may hear words or phrases in loud or even moderate voice at close range. Here the results obtained with the auricular method have often been brilliant, and teachers and aurists who fail to practice auricular training in pupils of this group are guilty of professional negligence.

Group three comprises pupils with such pronounced hard-hearing that they have difficulty in keeping up in classes with normal children. The causes of such defective hearing may be found in a destruction of the membrana tympani or in adhesions of the tympanic membrane to the promontory following marked pathological changes influenced by nasal obstructions or persistent, diffuse lymphoid or adenoid interference, oto-sclerosis, or constitutional, specific influences localized and characterized by a defective auditory nerve.

With individual attention and instruction this group of pupils may progress in scholarship almost as rapidly as the normal child. Unfortunately no provision is made, in our schools for normal children, for pupils with such hearing defects, and they are assigned either to the school for the deaf or to the special school. In the schools for the deaf they are placed in constant association with children with varying defects in articulate speech and the individual auricular training which such cases demand is often neglected.

In the special schools they are taught with the feeble-minded pupil and this association is of the utmost detriment to their progress. These children should be taught like normal children with the additional opportunity for individual instruction, and if possible special provision should be made for such groups in our public school-system.

It is to the important question of oral methods of teaching the deaf that I would especially direct your attention. Oral training in its broadest acceptance to-day comprises the teaching of speech and lip-reading to the deaf child, whether totally or partially deaf, and to prepare such a pupil for social intercourse, so that his method of communication is by actual speech and not by signs, manual, or pad and pencil, and his reception of speech is by sight as a substitute for his deficient or defective sense of sound. This is the foundation on which we are endeavoring to build the structure of modern education of the deaf, and it is to the support of this movement that we are bending every energy to enlist you.

The education of the deaf child is an obligation and not a *charity*, and you, as otologists, are as much concerned in the upbuilding of this structure as are the progressive educators of the deaf, who have put forth their best efforts in this direction.

Have you ever thought what a splendid uplift the combined influence of the otological profession might be towards developing this vital question?

Individual efforts in the building of so formidable a structure as the modern education of the deaf requires, are but feeble, and it is only by concerted effort, interchange of opinion stimulating criticism and inquiry, and scientific research in which the entire otological world should participate, that we shall be able to accomplish larger things for a good and great cause.

I have sat in your assemblies long enough to realize with what persistency, energy, resourcefulness and brilliancy you have concentrated your studies on the development of the technic of the radical mastoid operation, the physiology and pathology of the labyrinth, and the study of the perplexing question of oto-sclerosis. May I plead with you to give only a small part of this energy and enthusiasm to the advanced training of the deaf, and I feel certain that the results obtained by such co-operative work and influence will repay you to even greater extent than your proud accomplishments in otological surgery and pathology.

At the sixteenth annual meeting of the American Laryngological, Rhinological and Otological Society held in Washington D. C., in April, 1910, a symposium was arranged at which a number of progressive educators of the deaf and a few of the otologists who had given some attention to this question, presented a series of valuable papers setting forth the status of the deaf child from every point of view and stimulating a discussion among the members of this organization, which lives to-day in the memory of many of the fellows as one of the best achievements of this great national special society.

Unfortunately this is but a memory and not a practical entity. It was the unanimous opinion of the large assembly of otologists and teachers of the deaf present at that meeting that this question was broad and national in scope and that it would probably require the concerted influence of educators and otologists from every section of the country for its larger and proper development.

When the International Congress met in Boston, in August, 1912, this, the senior assembly in otology for the first time in the history of its organization included in its program a lengthy discussion of this question of the education of the deaf.

To those of you who were present at either of these meetings no further appeal is necessary to convince you of the seriousness of this problem and of the necessity for much thought and action in liberally providing for the deaf child with every resource at your command. The medical profession has been a potent influence in raising the standards of education and looking after the health and welfare of the normal child; the deaf child also demands a share of your consideration and a larger share of you, as otologists.

Another significant fact which must not be lost sight of is, that deafness is on the increase in this country and that better facilities must be provided for the proper care and development of this large class of unfortunates.

Stimulated by these efforts and examples as developed in our various otological assemblies, medical societies in some of the larger cities have given time and attention to this question in symposia in which the defective child, its proper dsposal, classification, and education, was discussed from every angle. Such meetings were held in New York, St. Louis, Omaha and other cities.

To illustrate the practical significance of this participation by the general medical societies, the report of the special meetings in St. Louis, as described by the writer in an editorial in THE LARYNGOSCOPE of March, 1912, is presented herewith:

"An innovation, recently arranged under the auspices of the Saint Louis Medical Society, has created much favorable comment both from the medical and the lay press, and has proved so successful in its presentation that other communities and organizations may profitably follow this example.

"The DEFECTIVE CHILD" is the subject of a series of symposia arranged by a special committee of the Saint Louis Medical Society. Three evenings were assigned to this work: I. "The Deaf Child;" II. "The Mentally Defective and Crippled Child;" and III. "The Blind Child."

The following programs were presented:

I. THE DEAF CHILD.

The Deaf Child .... Dr. M. A. Goldstein
Demonstration of Cases (By invitation)
Mrs. J. T. Moss (Teacher of Lip-Reading)
Defects Due to Nasal Obstruction .... Dr. W. E. Sauer
Lantern Demonstration of Cases and Pathological Specimens,
Dr. Eugene T. Senseney
Speech Defects: Demonstration .... Dr. C. Armin Gundelach
Discussion opened by Mr. Ben Blewett, Superintendent of Instruction, St. Louis Public Schools.

II. THE MENTALLY DEFECTIVE AND CRIPPLED CHILD.

General Consideration and Classification of Mentally Defective Children .... Dr. Sidney I. Schwab
The State of the Mentally Deficient Child (By Invitation)
Mr. Hugh Fullerton (Secretary Juvenile Court of St. Louis)
The Relations of the Crippled Child to the Community from an Orthopedic Standpoint .... Dr. Nathanial Allison

Special Schools for Crippled Children, with lantern slides demonstrating Children's Work (By invitation) .... Miss Julia Stimson
(Administrator of Social Service, St. Louis Children's Hospital)
Discussion opened by Mr. Roger Baldwin, Chief Probation Officer, Juvenile Court.

III. THE BLIND CHILD.

Prevention of Blindness .... Dr. M. H. Post
Heredity of Blindness........................ Dr. Clarence Loeb
Training of Blind Children (By invitation)........................ Mr. S. M. Green
Errors of Refraction in School Children .... Dr. John Green, Jr.
Discussion opened by Dr. James Stewart, Superintendent Department of Hygiene, St. Louis Public Schools.

"The essayists selected to present this subject-matter were asked to prepare their papers in a popular form, and to eliminate, as much as possible, purely medical technicalities. Special invitations to these meetings were issued not only to the members of the medical society but also to that class of the laity especially interested in child-welfare work and communal progress. The Superintendent of Public Instruction, the members of the Board of Education, the principals of all the public schools and teachers in the Special Schools of Saint Louis, the officials and members of the various organizations represented in the Child-Welfare Association, the judges and officials of the Juvenile Court, the president of Saint Louis, Washington, and Missouri State Universities, the Superintendents of the State Institutions for the Deaf, the Blind, and the Mentally Defectives, and the prominent charity workers and civic representatives were invited to attend these sessions.

"If the thoughts, energies and good-will offered by the several essayists, who have so enthusiastically advanced this program will produce their just reward, another step in the development of this important phase of educational and communal endeavor will have been taken. There seems to be a constantly growing interest in the problems that confront us concerning the care and proper disposal of the defective child. Statistics corroborate the assertion of the tremendous increase in the defects of sight, speech, and hearing, and in the mental and physical infirmities of the American child, and it is not only opportune but vitally imperative that the medical fraternity co-operate with educators, with social and charity workers and with all others of the laity who are beginning to realize the responsibilities of this serious question.

"At the last annual meeting of the National Educational Association which has just concluded its session in Saint Louis, and where representatives of all the important educational institutions were active, the question of the education of the defective child, his proper disposal and his segregation, was one of the most prominent topics for discussion. Much of the data and information necessary for an intelligent comprehension of this question by the layman can be furnished only by the medical profession, and we should cheerfully and energetically assume our share of the work to stimulate investigations which will help solve these complicated questions."

For an extensive co-operation, in which the interests of the medical profession, educators of the deaf, school authorities, boards of education, court officials, social service workers, and the intelligent laity are involved and enlisted, it is absolutely necessary that more of such practical and significant missionary work be done. I appeal to you all to develop further activities along these lines, so that every city and every community far and near may be in a position to assist in this worthy campaign.

Another phase of this question which is certain to prove a valuable adjunct in developing this cause is a resolution adopted at the meeting of the Section on Otology and Laryngology of the American Medical Association, in 1909, and indorsed by the American Laryngological, Rhinological and Otological Society, the American Otological Society and by the American Academy of Ophthalmology and Oto-Laryngology.

The special committee in charge of this work has carried out the first obligation placed upon it by sending a syllabus on the education of the deaf to every medical school in this country. As a matter of record and reference, the complete syllabus is here appended, together with the letter addressed to the deans of all the medical schools of the United States and Canada.

New York City, May 24, 1911.

Dear Doctor: At the annual meeting of the American Medical Association in 1909, a committee was appointed by the otological section, to draft resolutions and devise means for arousing increased interest among the members of the medical profession in the cause of ameliorating the condition of deaf children by education, and to report at the next meeting. The report of the committee as made at the meeting in St. Louis in 1910, and its accompanying resolutions were adopted and the committee continued by the section for the purpose of endeavoring to carry out the intent of the resolutions. One of these reads as follows: "That in all medical schools more instruction be provided during the course on the means available for ameliorating the condition of deaf children by education."

The committee feels confident that the schools will gladly adopt this suggestion, if such instruction is not already included in the course. They realize, however, that the lecturers upon whom this duty would devolve, are very busy men, and might find it a hardship to spend the time necessary to gather the material for such a lecture. The committee has, therefore, prepared a syllabus containing the essential facts that such a lecture might set forth, and takes pleasure in enclosing this booklet for reference should the lecturer choose to avail himself of it.

The committee hopes that the arrangement of the course will permit the lecture to be given during the graduating year, and that the students will be urged to make such notes for preservation as may enable them to intelligently advise cases that may from time to time come under their observation, since it is to the physician that the parents of the afflicted children first go for help, advice and guidance.

The committee would greatly appreciate the courtesy of a reply stating whether such a lecture is already a part of the course, and if not, that it will hereafter be included.

Cordially yours,
John L. Adams, Chairman.
H. R. Shurly,
Dunbar Roy,
Max A. Goldstein,
Committee of the Otological Section of the American Medical Association.

SYLLABUS ON THE EDUCATION OF THE DEAF.

Distributed among the Medical Schools of the United States and Canada by the Otological Section of the American Medical Association, through a committee consisting of Dr. John L. Adams, Chairman, New York City; Dr. B. R. Shurly, Detroit, Michigan; Dr. Dunbar Roy, Atlanta, Georgia; Dr. M. A. Goldstein, St. Louis.

Topical Analysis of Syllabus—Educational Treatment of the Deaf.

I. a. Historical Review: 1. Europe. 2. America. b. Present Status: 1. Europe. 2. America.

II. Comparison of Manual and Oral Methods: 1. Results of Manual Method. 2. Results of Oral Method. 3. Results of "Combined" Method. 4. Failure of "Combined" Method from a speech standpoint.

III. Classification of Cases: 1. Congenitally, totally deaf: 1. Of normal intellect. 2. Of subnormal intellect. 2. Adventitiously totally deaf: 1. Of normal intellect. 2. Of subnormal intellect. 3. Profoundly, but not totally deaf. 1. Of normal intellect. 2. Of subnormal intellect. 4. The Deaf-Blind. 1. Of normal intellect. 2. Of subnormal intellect. 5. The Hard of Hearing in the public schools.

IV. Educational needs of each class.

V. Sources of information open to those interested.

SYLLABUS ON THE EDUCATION OF THE DEAF.

The systematic education of the deaf began with the establishment of a little school in Paris by the Abbe de l' Epee in 1755, which he supported with his small personal income. Previous to that time, during the sixteenth and seventeenth centuries in Spain and England there had been occasional cases where the deaf sons and daughters of nobles, or persons of great wealth, had been educated and even taught to speak and read the lips by clever and devoted men, but the good Abbe de l' Epee was the first to offer the boon of education to the poor and rich alike. He, however, adopted a method of instruction by gestural signs and manual alphabet. About the same time Braidwood in Edinburgh (1760), and later in London, and Heinicke in Dresden (1778), were teaching by oral methods, but they, unlike the French Abbe, made a secret of their methods, and taught only the rich.

The first school in the United States was opened in 1817 at Hartford, Connecticut, and Thomas H. Gallaudet was its Principal, he having been sent the year before to Europe to train himself for his work. Mr. Gallaudet had sought the necessary instruction in Edinburgh and in London, but had been inhospitably received. In Paris, however, at the institution founded by the Abbe de l'Epee, and then conducted by the Abbe Sicard, his reception was most cordial. Therefore it was the sign language and the manual method which he brought back with him, and established in the first school for the deaf in this country. For half a century the education of the deaf in the United States was carried on exclusively by the silent methods imported from France by Mr. Gallaudet.

But in the meantime oral methods were coming to predominate in Europe, and in 1867, two small oral schools were opened in this country, one in New York City, and one in Northampton, Massachusetts. By oral schools is meant schools in which no manual form of communication, either gestural signs or finger alphabet, is taught or used by teachers or pupils in or out of the school room. All instruction or communication is spoken, except that writing is employed as it is in any ordinary school for hearing pupils. Gradually the teaching of speech and lip-reading to the deaf has made its way into the schools of this country, until more or less of this work is done in every school.

We have seen that at the very start there was a wide divergence in the matter of methods. In Europe, however, the oral method has come to be nearly universal, while the United States is the stronghold of manualism. The last international report of schools for the deaf was issued in

1901. The following table will show the status of oral and manual methods in Europe at that time and in the United States and Canada in 1910.

	No. of Schools	Oral Schools	Total Pupils	No. Taught in Pure Oral Schools	Per cents
Austria Hungary	38	33	2339	1947	84%
Belgium	12	11	1265	1206	95%
France	71	62	4098	3785	92%
Germany	99	99	6497	6497	100%
Great Britain	82	60	4222	2110	52%
Italy	47	38	2519	2044	82%
Norway	5	5	309	309	100%
Holland	3	3	473	473	100%
Russia	33	20	1719	949	56%
Spain	10	3	462	172	37%
Sweden	9	2	726	131	18%
Switzerland	14	14	650	650	100%
Totals	423	350	25279	20273	Average 80%
1910					
United States	145	82	12332	2809	22%
Canada	7	2	832	220	26%
Totals	575	434	38443	23302	42.66%

There are many schools in the United States, and some in Europe, that call themselves "Combined." That is they do some work in speech and lip-reading, and many of them have some classes in which all instruction is oral. But in many of the class rooms, and in outside communication, signs and the finger alphabet are taught, used and permitted. But experience has clearly shown that the best results in making speech and lip-reading a practical, working means of communication, cannot be obtained under the conditions existing in these "Combined" Schools. The manual method of communication is easier of acquisition for the child, and spoken language does not become his thought vernacular; he thinks in manual forms and expresses himself silently by choice. In the "Combined" Schools the manual "atmosphere" is all pervasive, and even coercive, for the child cannot avoid it. Therefore, the most satisfactory oral work cannot be done under "combined" conditions.

There is, probably, only one way in which the most satisfactory oral work possible can be done in a school in which there must, for any reason, be manual classes, and that is to make two schools of it, both under the same management, but the oral and manual classes having separate class rooms or different hours, and separate living quarters, and never coming in contact with each other at any time during the day. The largest school for the deaf in the world, the Pennsylvania Institution, in Philadelphia, has in this way been changed from a manual to a purely oral school, but the process occupied more than twenty-five years. The beginning was made by separating the school into two parts, a small oral department and a large manual, the pupils in the two departments never associating with each other in work or in play. Little by little, as the results of the oral work proved themselves satisfactory, the size of the manual department was decreased and the oral enlarged, until there are now no manual classes, and all communication in and out of the class room, in shop work and recreation, is spoken. Dr. A. L. E. Crouter, the Superintendent, in his annual report for 1909-1910, writes as follows: "In the Intellectual Department, instruction has, in the main, been conducted along the same lines as in previous years, the only noteworthy changes being the increased attention paid to lip-reading, and the entire absence of all forms of Manual Methods. These changes are believed to have proven helpful in the work. Oral Methods alone are now pursued in the instruction of all our pupils, and they are found quite adequate to their best advancement. In saying this, we do not claim to be able to make orators or public speakers of our pupils, but we do claim to be able to give them a good general education, and in doing so, to train their powers of speech and lip-reading to the extent of enabling them to communicate freely with their relatives and close friends, and to express their thoughts in fairly correct English on all topics of general interest. Except in a comparatively few cases more than this may not wisely be claimed for any method. Any method of instruction that will give the average deaf child a fair command of his native tongue, a fair acquaintance with the subjects that constitute a fair English education, and the power to speak intelligibly and to read the speech of others, is a good method, and any method that falls short of this, by whatever name known, is not a good method. We have dropped Manual Methods because we have found them unnecessary, and because we believe they interfere with the best progress of our pupils in the acquisition of speech and lip reading and in all regular branches of study."

Thus once and for all, in the most conservative and practical way, has the country been shown how it may, if it wishes, gradually abandon the older and less desirable method for that which is more in keeping with modern ideas of education. The feasibility and desirability of this change having been demonstrated beyond question, without hurry and without prejudice, purely as a matter of indisputable fact, the same result can now be obtained in any other school in a period of not more than eight years. All that is necessary is the willingness on the part of the citizens, expressed by legislative action, to defray the slightly greater expense, and the placing in charge of a competent and experienced man or woman. Eventually this will be done, but not until a considerable body of public opinion is created by informing the people of the advantages possible to their deaf children, at present open to those in some states, but denied to those of others less enlightened. A great step toward this end will be accomplished if education can ever be removed from the sphere of politics, and appointments made on a basis of educational efficiency and not political service.

An examination of the very careful statistics that are issued each year both by the "American Annals of the Deaf" and by the "American Association to Promote the Teaching of Speech to the Deaf," shows that in addition to the "22% (2809) pupils, taught in 1910, in pure oral schools, 38% (1753) of the pupils in combined schools are put down as 'taught wholly or chiefly by the oral method.'" Thus on the face of the returns it would appear that some 60% of the pupils in United States schools are taught by oral methods, which is not so far behind the 80% in European schools. The advocates of the oral method have, therefore, made sufficient impression upon the authorities of the "combined" schools to lead them now to try to give 38% of their pupils the benefits of that method that began in this country half a century later than the manual method.

But the 60% is deceptive for the reason, given above, that it is impossible to have the true oral spirit among the pupils, (to say nothing of the teachers), under the mixed or 'combined" conditions. In fact this apparent growth of the oral method has been in some degree a hindrance to true oral progress, paradoxical as that may seem. For the sending out into life of these thousands of deaf young people who are supposed to have been orally educated, but who, owing to their familiarity with manual means of communication, have never learned to think in spoken forms and to depend upon them for their real working means of intercourse with those around them, and have, therefore, found their oral equipment insufficient for the purposes of life, has resulted in making them bitter against what they mistakenly believe to be oralism, and in turn has caused those with whom they associate to look upon such instruction as unsuccessful and futile.

The existence of this large and yearly increasing number of deaf persons partially taught by oral methods is, in a measure, a hindrance to the growth of the best oralism. It would be better for the deaf if each of the "combined" schools could be made into two separate schools, a manual and an oral school, under the same or separate management, but segregating the manually taught from the orally taught throughout the entire period of school life. Such a procedure is probably the only one by which the conditions can be secured that are necessary for the best possible results.

For educational purposes deaf children and young people should be divided into five general classes, and every physician should be familiar with the necessities and possibilities of each class. Each of these five general classes should in turn be divided into two classes, those of normal intellect, and those of subnormal intellect. The placing of deaf children of subnormal intellect in classes with deaf children of normal intellect should not be tolerated any more than it would be in the case of hearing children.

Class I. The totally and congenitally deaf, and those adventitiously deaf before three years of age: (a.) Of normal intellect; (b.) Of subnormal intellect.

Class II. The adventitiously deaf after three years of age. (a.) Of normal intellect; (b.) Of subnormal intellect.

Class III. The profoundly, but not totally deaf: (a.) Of normal intellect; (b.) Of subnormal intellect.

Class IV. The blind deaf: (a.) Of normal intellect; (b.) Of subnormal intellect.

Class V. Somewhat hard of hearing pupils in public schools for the hearing.

Those in Class I will be dumb as well as deaf unless they are given special instruction in speaking, and this instruction should be systematically begun between four and five years of age in the case of the otherwise normal child. The subnormal child may wait a little longer. Parents and friends can do much to prepare the little one for this systematic instruction, and later in this syllabus sources of information on this subject will be enumerated. These children should be treated as hearing children, so far as instruction in manual communication is concerned. That is to say, they should not be taught the manual alphabet or gestural signs, and the spoken word should be taught as quickly as possible to take the place of the child's natural descriptive and indicative gestures. The human race has for thousands of years acquired its spoken form of communication between the years of two and eight, and the immense aid of inherited tendency is strongest during that period, and all possible advantage should be taken of this fact.

The deaf child beginning at four or five years of age can be given in any school for the deaf in the world a good "grammar school" education in the three R's and in History, Geography, and Industrial training. In addition to this he can, in any of the good Oral Schools, be given a degree of proficiency in speaking and understanding the speech of those with whom he is thrown in frequent intercourse, to make him entirely independent of any form of manual communication. This cannot be done in any so-called "Combined School." It is to be hoped that the states will gradually recognize the fact that a good oral school can accomplish all that a good "Combined" school can do, and in addition to this a very considerable and very desirable excess of result that is clear gain.

In the case of deaf children of Class II, those adventitiously deaf after three years of age, the most essential thing for the physician to know is that extremely prompt measures must be taken to prevent the loss of the already acquired speech. The absolute necessity for immediate action cannot be too strongly impressed upon the parents or guardians of the child. Extraordinary efforts should be made to induce the child to talk as much as possible. If the child has learned to read before hearing is lost he should be encouraged to read aloud a great deal. The greatest care should also be taken to lead him to always watch the lips of people, and his friends should accustom themselves to being sure that his eyes are directed to their lips before they speak to him. They should also speak a little more deliberately in addressing him for the first year, but carefully avoid exaggerated and unnatural mouthing of words. Perfectly normal speech should always be used, a little more deliberate, and only when the child's eyes are focused on the lips of the speaker. While special instruction may not be required at once, it is very desirable that the parents should seek the advice and guidance of some experienced oral teacher of the deaf the moment they know that hearing has been impaired. If proper methods are employed with sufficient promptness, the transition from comprehending speech through the ear to reading it by the eye may be made so gradually and simply, and the natural speech of the child may be so well preserved that there will be but little interruption of educational or social activities. Without this prompt attention, however, the child of eight, or less, will become a deaf mute if hearing is lost, and have to be treated in accordance with those of Class I. Unfortunately there are many such at present in schools for the deaf throughout the country.

The children of the third group, while too deaf to attend the ordinary public and private schools, yet retain some remnants of hearing which can be utilized in teaching them to modulate their voices, and in comprehending language spoken very loudly near the ear, or through some electrical or mechanical aid to the hearing. This class is probably much larger than is usually supposed, since a degree of sound perception sufficient to permit of educational training to usefulness, may yet be too small to be considered of practical value by either the possessor or his friends.

There are probably many pupils in the schools for the deaf of the world, with a sufficient power of sound perception to be taught to discriminate vowel sounds, and therefore words, spoken loudly near the ear, who have never so comprehended language because they have never been taught to do so. The schools cannot be blamed for this, because such work must be almost entirely individual, and the appropriations do not permit of employing the necessary teachers. It would be, however, a valuable mental training, for when the ear avenue to the brain is wholly closed, there must be an area which can never be developed through a vicarious sense, and any stimulation that can reach the brain adds to the completeness of its development. To acquire a hearing vocabulary, by means of an imperfect auditory apparatus, is somewhat akin to acquiring a new language over a telephone that is not working very well. Whether the actual perception of sound is increased by the training is not always certain, but the effect is the same, owing to the increased ability to interpret the meaning of the imperfect sounds perceived. Urbantschitsch of Vienna has done much work on this line and written of it. The reason why this remnant of hearing does not develop spontaneously, is because there is not enough of it to serve any useful purpose under the ordinary conditions of conversational intercourse. Therefore the disconnected and meaningless sounds which from time to time reach the child's brain are simply ignored. We are all familiar with this failure to hear sounds when attention is not given. The clock strikes the hour, but we do not notice it. The impression was made upon the hearing mechanism, and transmitted to the brain, but the mind was otherwise occupied. We ourselves ignore hundreds of sounds daily so completely that to all intents and purposes we are deaf to them. We really hear with our minds through the medium of the ear and its associated parts, and when the mind fails to perform its function we are as truly deaf as though the mechanism of the ear were destroyed. The result of this auricular training with profoundly deaf children who still retain some power of sound perception is to lead them gradually to notice sounds which have always reach them, but had been ignored as meaningless and without value or interest. When these sounds acquire a significance they at once become interesting, and attention is paid to them, and we say how much better they hear. Whereas the actual sound perception may not have altered, but they have learned to associate ideas with sounds which they could have heard before, but ignored as meaningless.

The Fourth Class, those both blind and deaf, require a somewhat different treatment from those who are only deaf, and also even more individual attention. Manual means of communication must be very largely employed in their education, though they can be, and should be, taught to read the lips of speakers with the aid of their fingers, and be taught to speak themselves even to those who spell manually to them.

In general each child requires an individual teacher. The first case of this kind that was rescued from the terrible oblivion of the double misfortune was Laura Bridgman, who was given a meager education, and a little industrial training, by the great educator of the blind, Dr. Samuel Howe. The most famous case is probably that of Miss Helen Keller, who, through the devoted labor of Miss Annie Sullivan, now Mrs. Macy, and later of other teachers, has become a scholarly, cultured woman of rare intellectual powers and sweetness of character. She has a far more extensive education and a wider knowledge than the average young woman college graduate. She herself uses only speech in her communication with those around her, though others usually spell manually to her. She can, however, read the lips with considerable facility by the aid of her fingers.

There are now many deaf-blind children under individual instruction in schools for the deaf and schools for the blind in the world. Last year the State of Pennsylvania made a special appropriation for the instruction of a deaf-blind girl at the Pennsylvania Institution in Philadelphia.

The Fifth Class, the slightly hard of hearing pupils in the regular public schools of the country, is much larger than is usually known, and almost entirely neglected. They are in no sense candidates for a special school for the deaf, and yet they are too deaf to work properly in classes of forty or fifty to a single teacher. They usually come gradually to be classed as, dull, stupid, backward children. Sometimes they are, but often they are of fully average, if not exceptional, ability. All that is needed to enable them to do the regular work of the graded school in the ordinary way is to give them more individual attention in smaller classes. There should be provision for such a class in every large public school, and it should not exceed fifteen pupils. It has been found that among the 600,000 school children in New York City, one in each hundred has hearing sufficiently impaired to be severely handicapped under the ordinary conditions of the City's schools. In each of these schools there are usually from twelve hundred to two thousand pupils, so that a class of from twelve to twenty would be provided in each school building. Great care should be taken that no stigma is attached to such a class. The arrangement should be such that they would not be looked upon as feeble-minded, or defective, otherwise much difficulty would be experienced in carrying out the plan successfully. They should do exactly the same work in the same time as is done in the other larger classes.

Physicians desiring detailed information on any point touching the welfare of the deaf, aside from medical matters, can obtain it from the following sources: The "Volta Bureau for the Increase and Diffusion of Knowledge Relative to the Deaf," and "The American Association to Promote the Teaching of Speech to the Deaf," both of Washington, D. C., both established by Dr. Alexander Graham Bell, the distinguished inventor of the telephone. The "American Annals of the Deaf," Kendall Green, Washington, D. C. Prof. John Dutton Wright, editor of the special department for the Deaf in "THE LARYNGOSCOPE," St. Louis, Mo. Dr. John L. Adams, 38 East Fifty-first Street, New York City, Chairman of a committee appointed by the Otological Section of the American Medical Association. Dr. E. B. Dench, 15 East Fifty-third Street, New York City, Chairman of a committee appointed by the American Otological Society and the American Laryngological, Rhinological and Otological Society.

A list of schools in the United States and Canada will be found in "THE LARYNGOSCOPE," St. Louis, Mo., for December, 1910, and in the "American Annals of the Deaf," Washington, D. C., January, 1911, and in the "Volta Review," Washington, D. C., May, 1911.

It is difficult to ascertain how active the co-operation of the medical departments of the universities have been in response to this appeal. Many endorsements of this resolution have been received from various universities, and many of the otological departments, have agreed to devote at least one lecture to each graduating class on the care, disposal and education of deaf children. The purpose of this lecture is to call attention to the responsibility of each physician in his community in his relation to this question. Much of the necessary stimulus needed in this missionary field depends, of course, upon the personal equation of each lecturer and the amount of interest he may take in informing himself as to the needed data for such address.

The ideal way to reach the senior student and to post him accurately in this matter would be for a small number of specially qualified authorities in this work to make the circuit of the medical departments of the universities and give comprehensive talks to the student-body each year.

It is very evident from the meager response of otologists to this movement in the past that but little energy and thought has been applied to this field of work. Impelled by the promised co-operation of a number of progressive educators of the deaf and prominent otologists from various medical centers in America, representing two professions vitally concerned in this field, the establishment of the Central Institute for the Deaf was undertaken, even though it appeared a Herculean task. We well realize the difficulties that are before us. There are many contentions to overcome in any new movement, especially one of an educational character, and when a strong conservative element still endeavors to maintain its position and impede the natural upward and onward evolution in child-training.

A handicap of no slight degree is also to be found in the apathy with which the otological profession has until now treated this important subject. It is only by actual, practical demonstration and a knowledge of the thorough soundness of the foundation on which we are building that we hope soon to overcome these two most apparent obstacles. We must convince the conservatives among the teaching profession that the principles of the advanced training which we advocate are sound and practicable, and that the results already achieved by oral and auricular methods offer advantages and opportunities to the deaf which have never been realized by the advocates of the manual and combined systems.

The indifference of the otologist is rapidly disappearing, as evidenced by the increasing interest shown from year to year in the practical demonstrations which have been offered at national assemblies and the liberal discussions which the subject of the deaf child have evoked. In order to make this propaganda effective, however, we need active, individual support rather than mere passive encouragement.

The scope of the Central Institute for the Deaf is a rather comprehensive one. We have widened it to meet the needs of as many classes of deaf children and adults as possible, to furnish data and statistics of this field of endeavor to the medical profession, to teachers of the deaf, and to the interested laity, and to provide normal training for the equipment of teachers properly qualified to carry on this work efficiently and effectively.

I have endeavored to present in chronological order the efforts that have been made to bring this question to your more serious attention, and to show the breadth and importance of its scope and the many influences and interests that are necessary to bring such a nation-wide movement to a successful issue. The results possible in this progressive campaign in the interests of the deaf will depend mainly on the numerical strength that can be enrolled and of the otologists and the general medical profession as a supporting factor in this worthy cause.

I appeal to each and every reader who may be sufficiently impressed by the presentation of the work thus far done and the intrinsic merit of the cause we represent to volunteer his personal support at every opportunity and in every possible way. Our cause will gain strength with every effort you exert, no matter how slight. We feel that we are on the threshold of a big movement, and its future strength will to a great extent be measured by your concerted influence.

3858 Westminster Place.

A CONTRIBUTION TO THE STUDY OF THE ANATOMY OF THE TYMPANIC CAVITY.*

DR. RALPH BUTLER, Philadelphia.

Much has been written of the gross and microscopic anatomy of the human tympanum but sections of this part of the middle ear show so much of undescribed detail and have been so inadequately illustrated that additional drawings from such sections may be studied to advantage.

The accompanying illustrations were made from microscopic sections of the human tympanum prepared by the author in the McManes Laboratory of the University of Pennsylvania. The usual methods of hardening, decalcifying and imbedding in celloidin were employed and cuts were made in the planes which seemed to be most instructive.

The drawings are arranged in three series. The first contains nine illustrations of coronal sections; the second, four of a sagittal series; and the rest are horizontal, thus showing the relations in three planes approximately at right angles to each other.

In the coronal sections, Figures 1 to 11 inclusive, it is interesting to observe the changes encountered as we pass from the posterior part of the tympanum, as illustrated in Figure 1, to the anterior section depicted in Figure 11. The facial nerve lies directly above the stapedius muscle in the posterior sections and above the tensor tympani in the anterior, thus bearing a similar relation to the two muscles of the tympanic cavity. In the former it lies just below the external semi-circular canal and is overhung by it. The writer has frequently found the bony separation between the nerve and the muscles to be incomplete in certain sections and has previously demonstrated a large branch of the nerve supplying the stapedius.

The broad normal fibrous ligament of the short process of the incus at its tip, as illustrated in Figure 1, is in marked contrast to the delicate attachment, found further anteriorly, Figures 2, 3, 4 and 5, consisting of two layers of mucous membrane, between which is seen a little fibrous tissue and an occasional blood vessel extending between the scutum and the incus.

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*Candidate's thesis presented at the twentieth annual meeting of the American Laryngological, Rhinological and Otological Society, Atlantic City, June 20, 1914.

The wedge-shaped bony partition between the epitympanic cavity and the external auditory canal, called by Leidy the scute and formed by the squamous portion of the temporal bone, is best illustrated in Figure 9. The destruction or removal of this septum gives us an unobstructed clinical view of the malleus head in its normal position and affords better access to the attic.

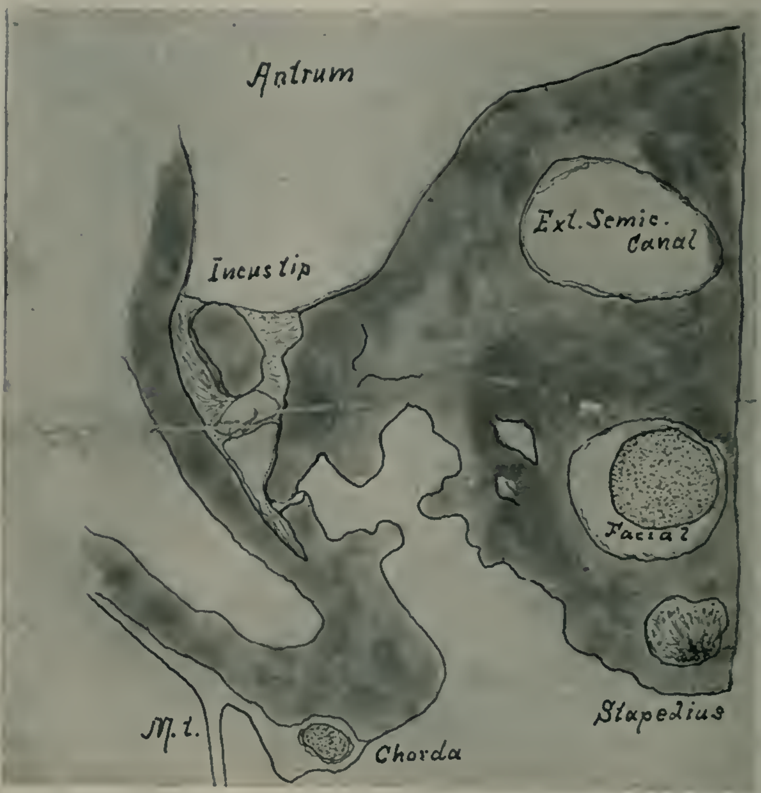

Figure 1.

Attached to the lower part of the scute is the fold which forms the inner boundary of v. Troeltsch's pouch and suspends the chorda tympani nerve. In Figure 5 it encloses a plate of bone which is probably the free tip of the posterior spine of the annulus. Although it is poorly illustrated in this series, Figure 6, the author has usually found an attachment of this

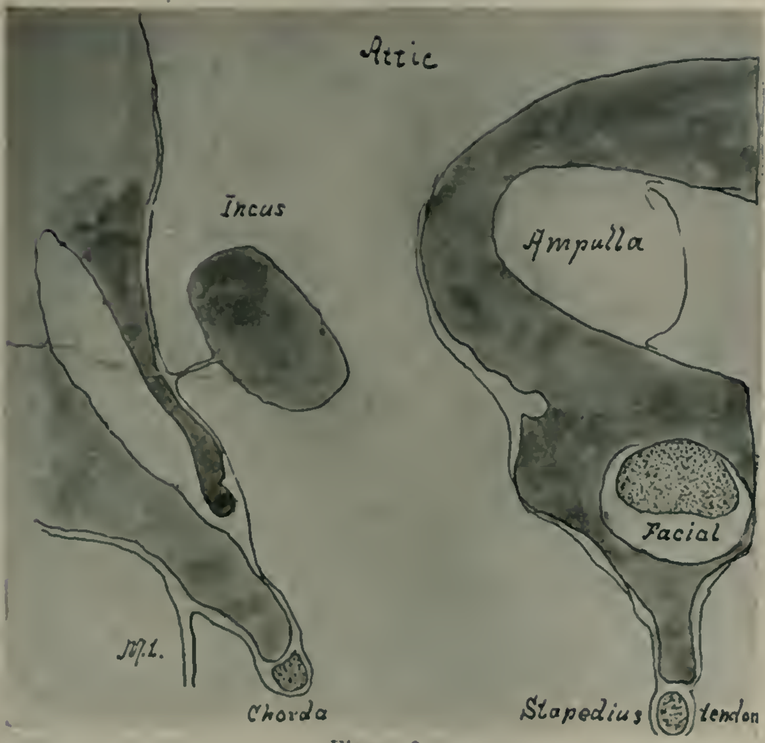

Figure 2.

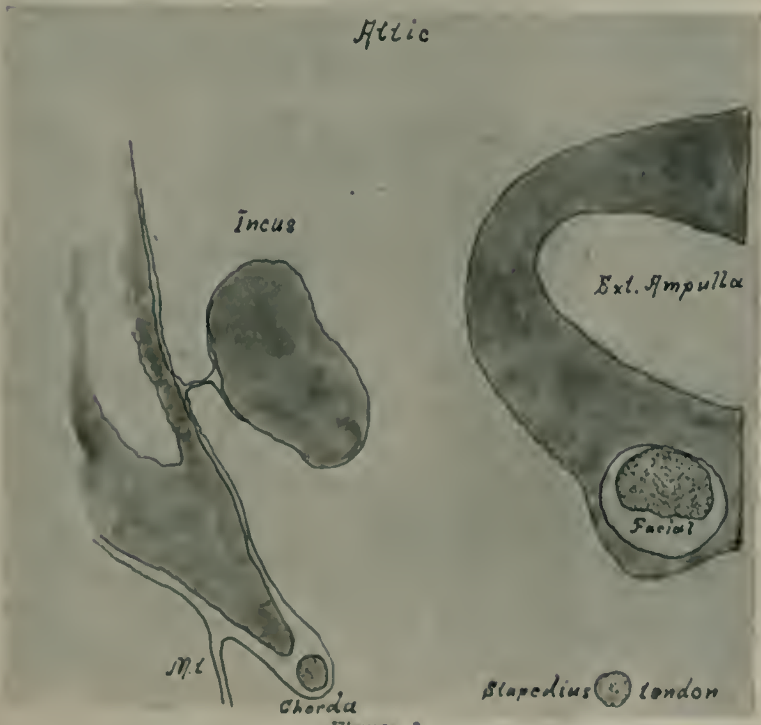

Figure 3

fold and the chorda to the incus shank, as maintained by Brunner and Henle. This fold and chorda are also illustrated in the horizontal section, Figure 16.

External to the attachment of this fold is found the upper margin of the membrana tympani. The drumhead has an independent attachment to the Rivinian margin in the poterior, Figures 1, 2 and 3, and again well forward as in Figure 9, while in Figures 4 and 5 the attachment is in combination with that of the posterior fold, and in Figure 10 with the external ligament of the malleus.

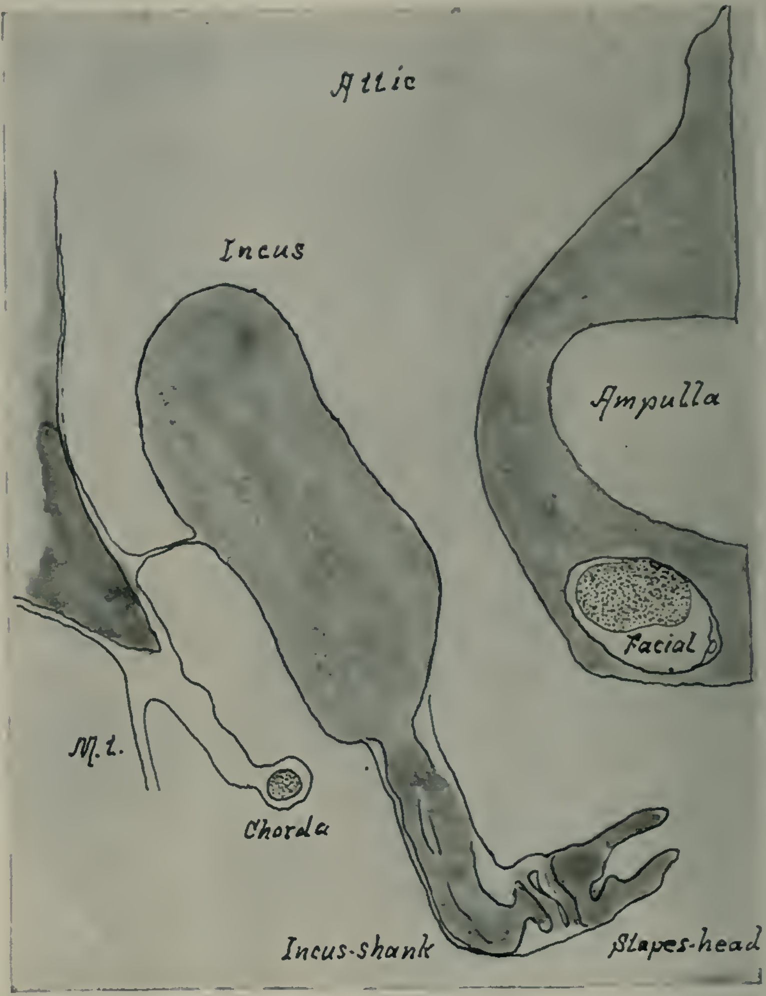

Figure 4.

Schwalbe claimed that the external ligament of the malleus and the flaccid membrane originate from the scute at two distinct points. Kretschmann maintained that they were combined for a short distance. Merkel considered Schwalbe's observation the usual one and Kretschmann's the exception. In this series we find them widely separated in some sections as Figure 9, while further forward as in Figure 10 they are combined for a short distance. As Merkel has maintained it would be impossible to have a perforation from the outer attic though this part of Shrapnell's membrane in a case such as illustrated in Figure 9 without entering Prussak's space, but in the one shown in Figure 10 such a perforation is conceivable.

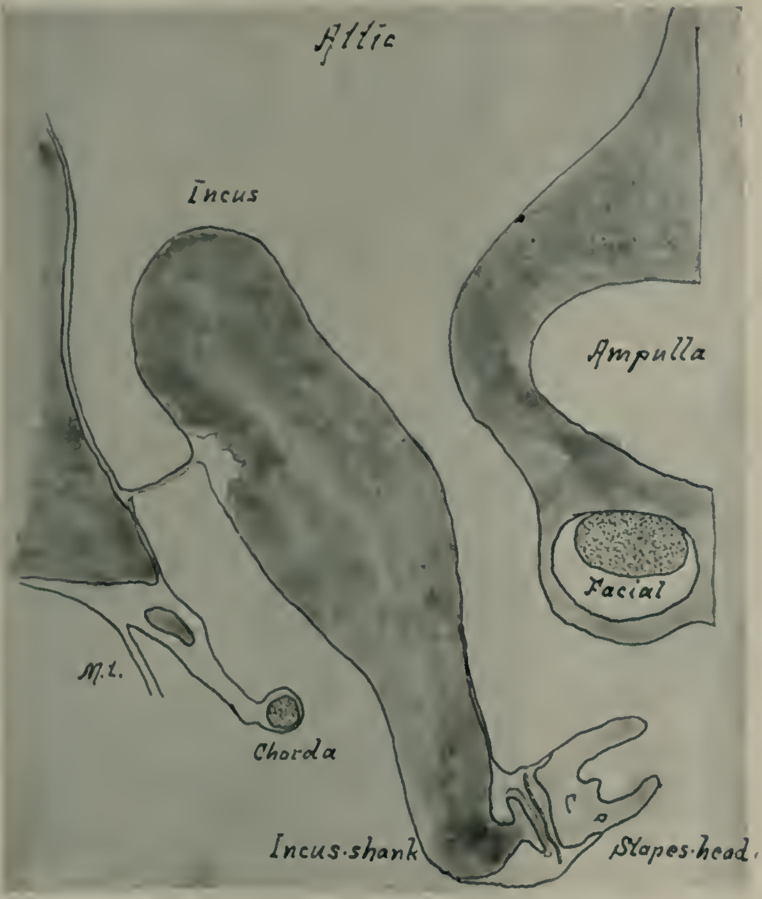

Figure 5.

Although the malleo-incudal joint is more clearly shown in horizontal and sagittal sections, the coronal cut, Figure 7, shows the malleus head lying between two portions of the incus body and presents an unusual view of the incus cog.

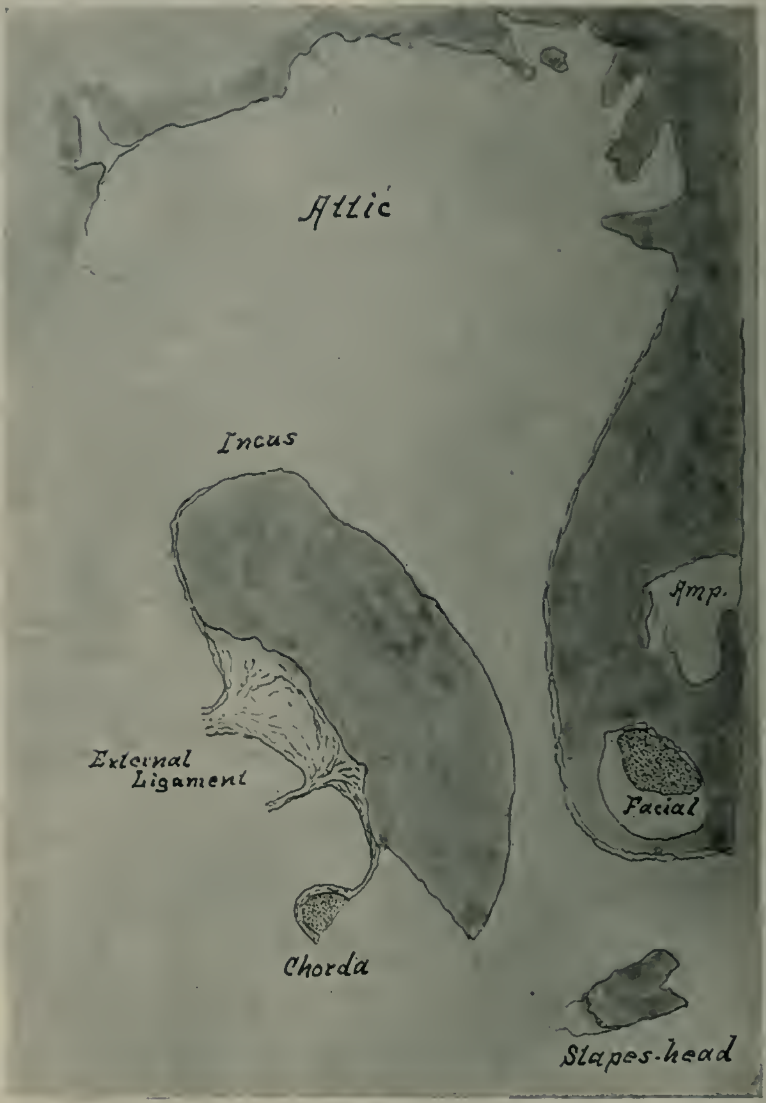

Figure 6.

The form, comparative size and relations of the contents of the tympanic cavity, as they occur in the sagittal plane, are illustrated in sections 12 to 15 inclusive.

The tegmen tympani is well shown in this series and forms in the central sections an angle of about 65 degrees with the upper surface of the malleus and incus and constitutes one side of the triangular space between it and these ossicles.

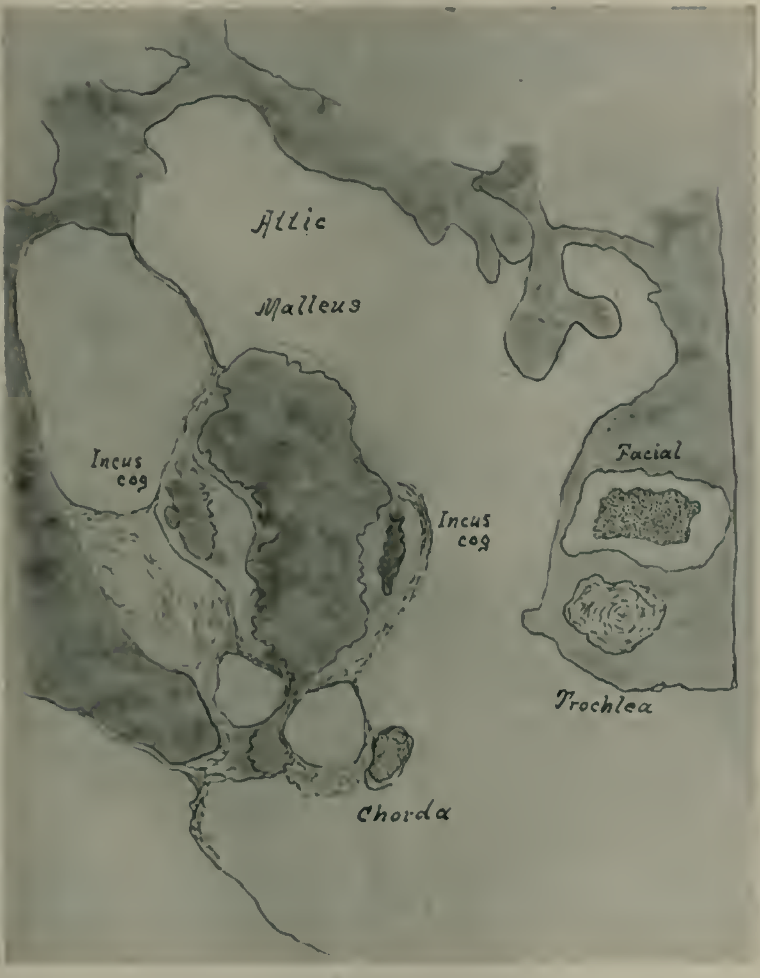

Figure 7.

Extending from the tegmen to these ossicles is usually found a more or less extensive suspensory ligament or fold, known as the suspensory ligament of malleus and incus. Although the anterior part, known as the suspensory ligament of the malleus has been described as a thread-like band, the writer has usually found it extending well over the malleus head and merging with the anterior fold and occasionally prolonged backward over the incus as a falciform membrane. In this group there is no suspensory ligament in the outer three cuts, but the inner ones as Figure 15 contain a stout band of fibrous tissue enclosing a plate of bone and extending from the tegmen to the upper part of the capsule of the malleo-incudal joint.

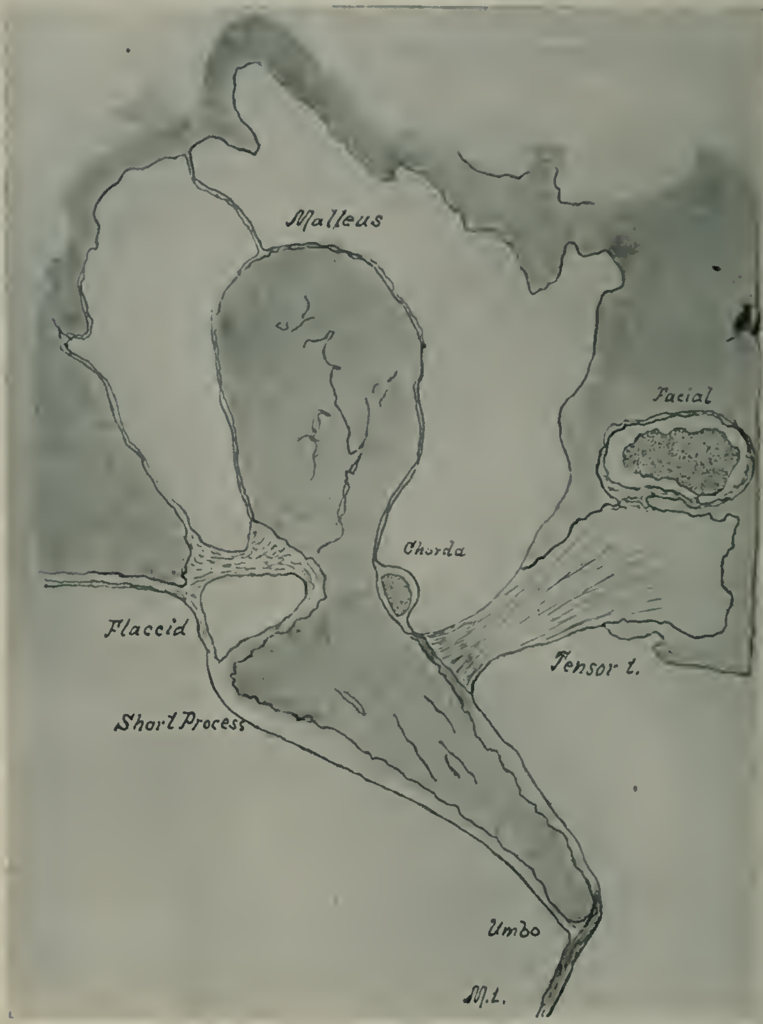

Figure 8.

In Figure 12 the chorda tympani nerve is seen between the incus shank and the malleus handle just above the attachment of the posterior fold of the drumhead. More internally, Figure 13, it is intersected at two points as it bends around the malleus, a part appearing on either side of the ossicle. Its relation to the malleus neck and tendon of the tensor tympani is depicted in Figures 8, 10 and 11.

Not infrequently horizontal sections of the short process of the incus show a separation of the tip from the main part of the bony process. This is explained by the notch (a) Figure 11 filled with fibrous tissue. A section through this space would show a break in the continuity of the bone. The notch becomes deeper as we proceed toward the inner wall of the tympanum.

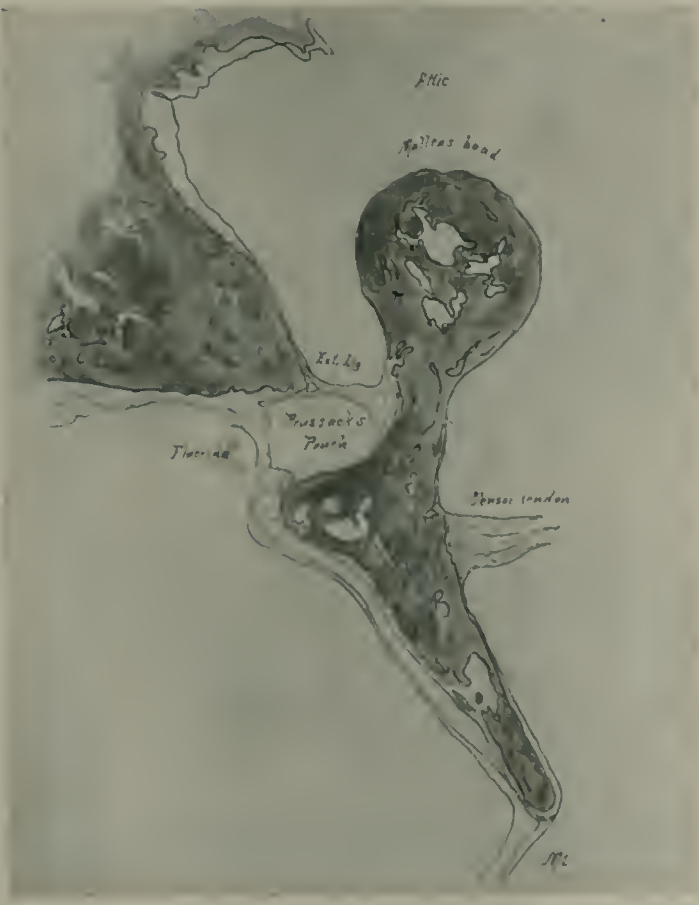

Figure 9

In these sagittal sections the capsular ligament of the malleo-incudal joint is thicker in the lower part while in horizontal sections it is more conspicuous on the inner side except near the

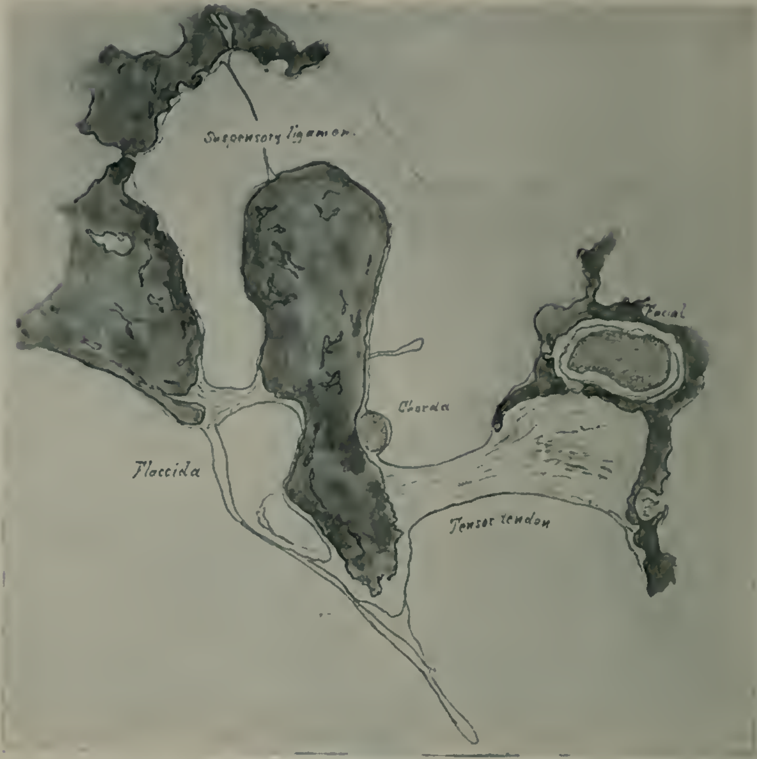

Figure 10.

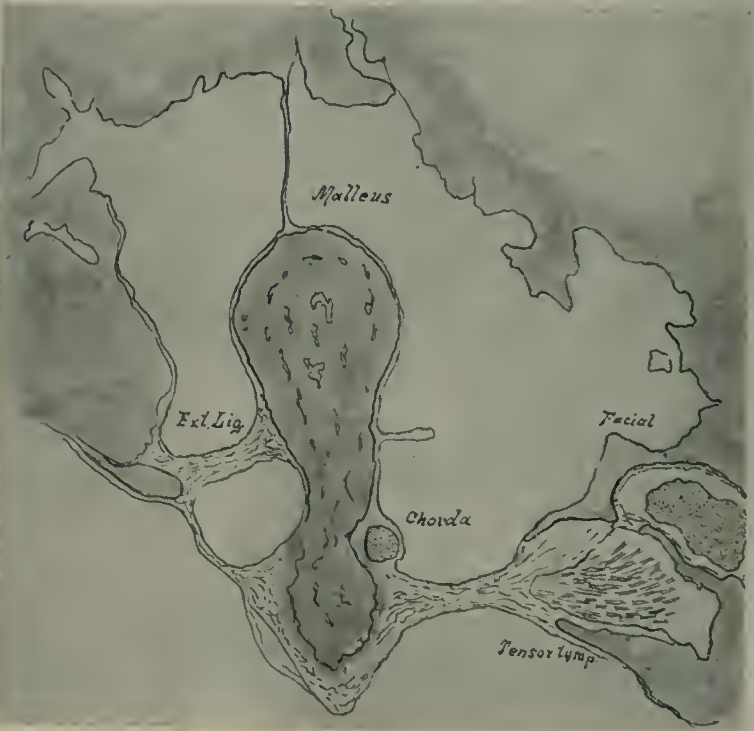

Figure 11.

upper periphery of the articulation where it is reinforced on the outer side by a stout band of fibrous tissue, Figure 17.

While many writers have denied the presence of a meniscus in the malleo-incudal joint, the writer has usually found it represented by a distinct disc of fibro-cartilage whose shape and size varies with the direction and level of the section. In central horizontal sections it is usually wedge-shaped with the thick end internal while in the upper part of the articulation it has approximately the same width throughout. In one specimen we found a dumb-bell-shaped meniscus in the central sections. In sagittal sections it usually is clearly defined at one or both ends of the joint and in some cuts is quite conspicuous near the center.

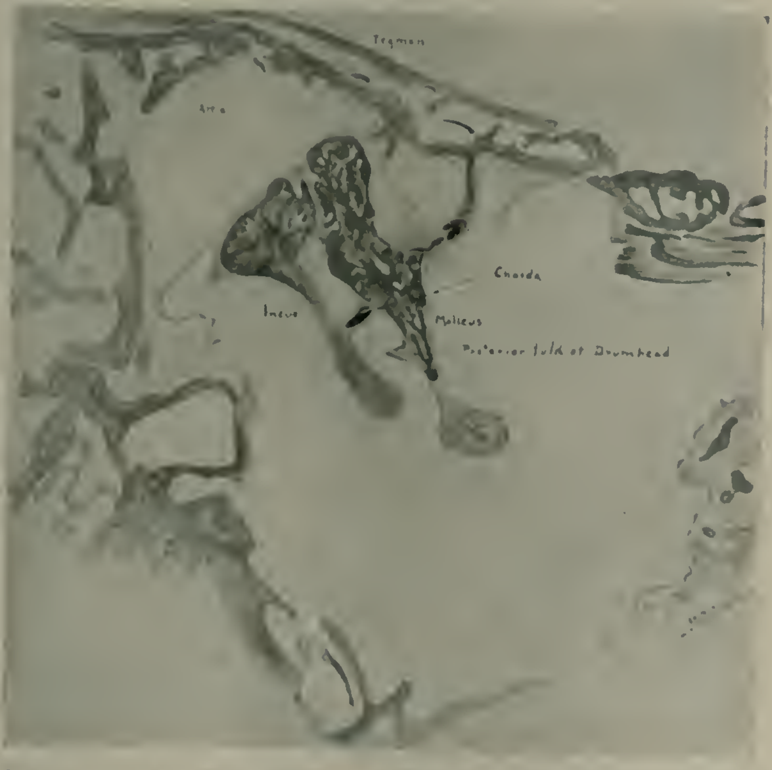

Figure 12. Outermost sagittal section showing the relation of the chorda to the malleus and the incus and the attachment of the posterior fold of the tympanic membrane.

Cartilage usually sheathes the posterior tip of the short process of the incus, the short process of the malleus, the outer, posterior and to a less extent, the anterior surface of the malleus-

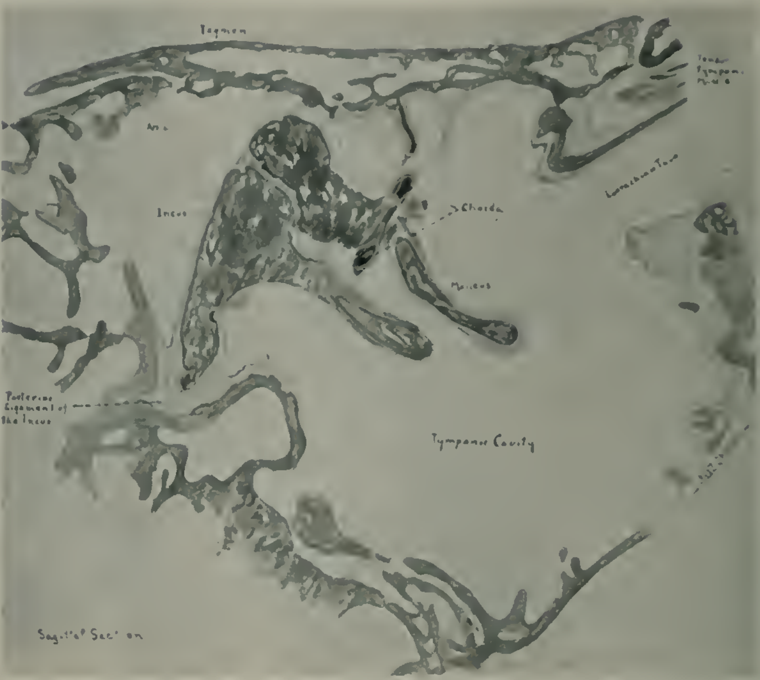

Figure 13. Central section showing the relation of the chorda to the malleus and the incus, the tensor tympani muscle to the Eustachian tube, and the tegmen tympani to the malleus and incus.

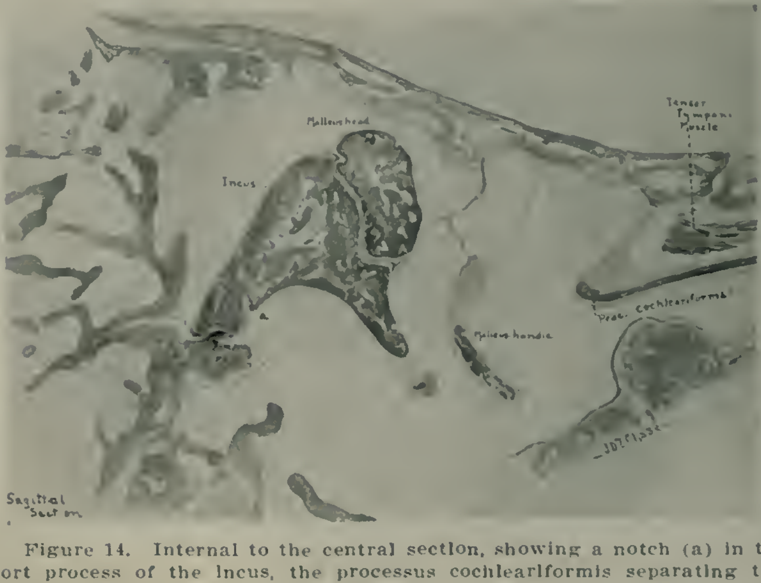

Figure 14. Internal to the central section, showing a notch (a) in the short process of the incus, the processus cochleariformis separating the tensor tympani muscle from the Eustachian tube.

handle, although such a well-defined cartilaginous sheath of the handle as described by Gruber has not been seen.

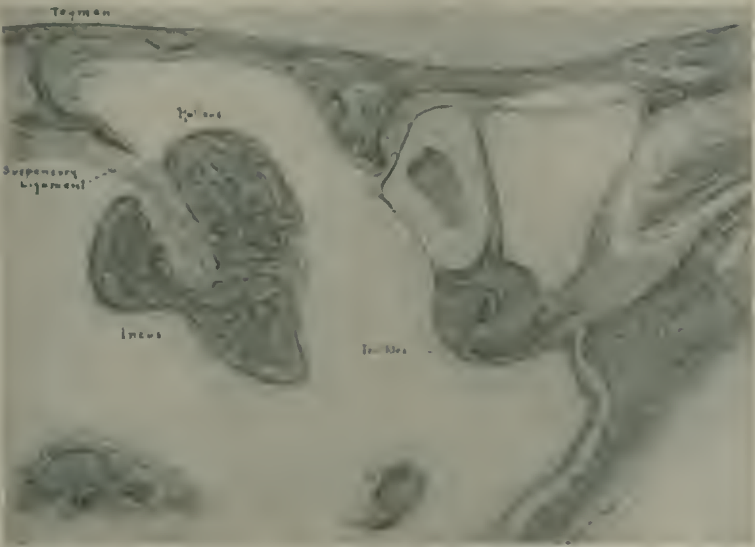

Figure 15. Innermost of the sagittal sections showing a broad suspensory ligament extending from the tegmen to the malleo-incudal articulation and containing a plate of bone. Bands of fibrous tissue from the tegmen to the trochlea.

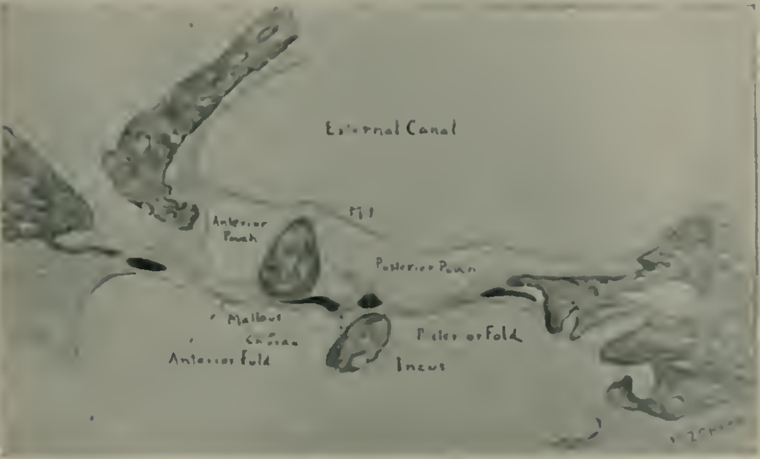

Figure 16. Horizontal section showing the relation of the anterior and posterior pouches to the drum-head, anterior and posterior folds, chorda, malleus, incus and adjacent walls

In the horizontal section, Figure 16, are shown the anterior and posterior pouches separated by the manubrium and bounded externally by the drumhead and internally by the anterior and posterior folds including the chorda, cut in several places.

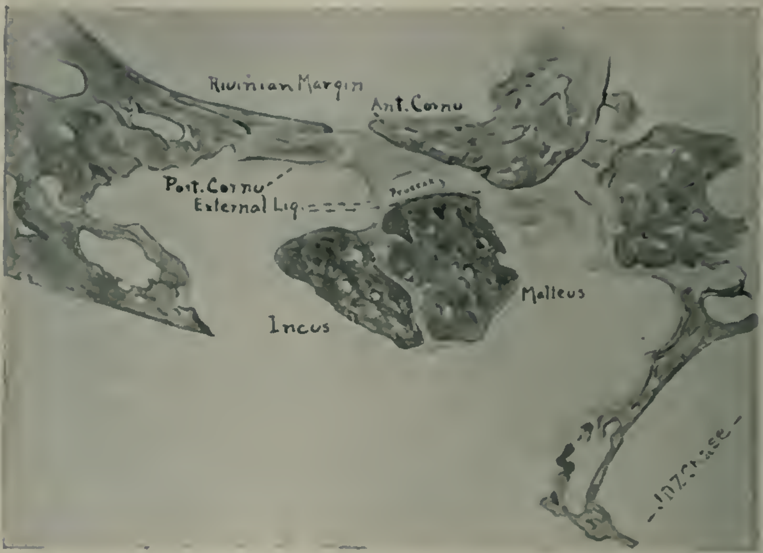

Figure 17. Horizontal section. Re-inforced external ligament of the malleo-incudal joint, the meniscus, the upper part of Prussack's space, and the external ligaments of the malleus.

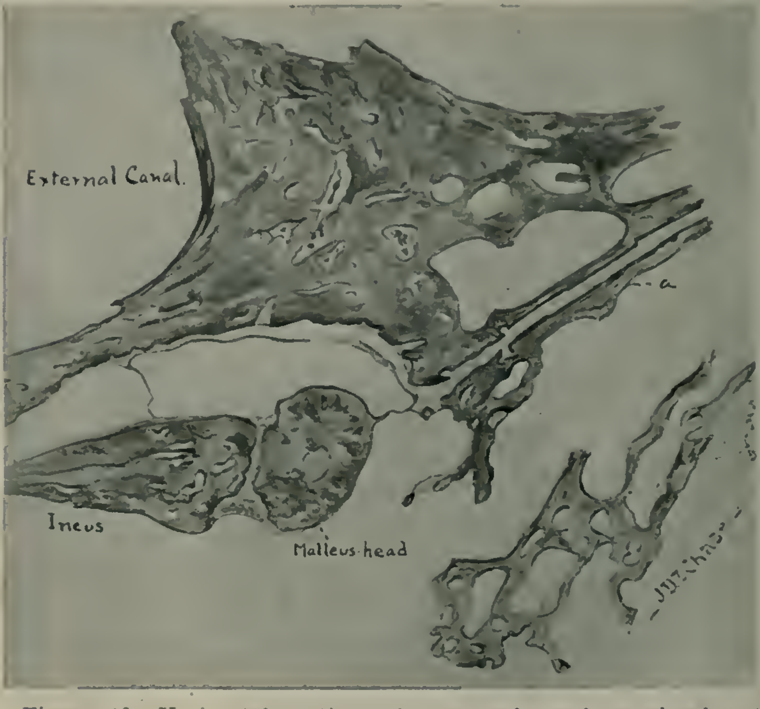

Figure 18. Horizontal section. An unusual specimen showing the relation of the petro-squamosal suture to the malleus head. Note the re-inforcement of the inner side of the capsular ligament of the malleo-incudal joint.

The horizontal section, Figure 19, shows a well-formed joint between the posterior end of the short process of the incus and the tympanic wall instead of the usual fan-shaped ligament shown in both the horizontal and sagittal sections here presented. A similar anomaly from a photograph of preparation by Dr. Blake is illustrated in Randall and Morse's "Photographic illustrations."

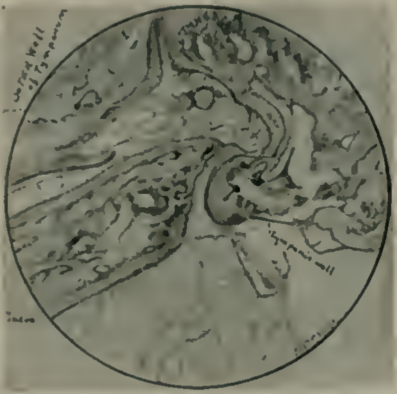

Figure 19. Horizontal section. A joint between the posterior end of the short process of the incus and the tympanic wall instead of the usual fan-shaped ligament.

More curious and probably unique is the horizontal section, Figure 20. It depicts a psuedo-articulation between the outer part of the malleus-head and a broad, bony projection of the anterior tympanic wall.

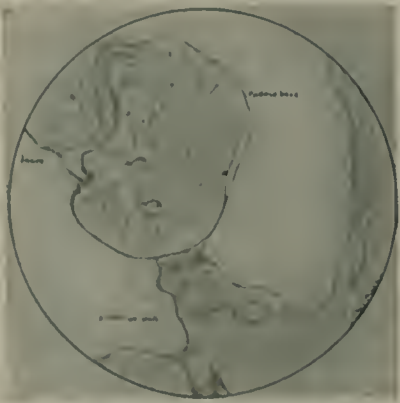

Figure 20. Horizontal section. A pseudo-articulation between the outer part of the malleus head and the bony projection of the anterior tympanic wall.

The long, sharply defined space filled with fibrous tissue at (a) in Figure 18 is probably the petro-squamosal suture.

1926 Chestnut Street.

VACCINE THERAPY IN EAR DISEASE. FURTHER CONTRIBUTION TO THE STUDY OF THE SUBJECT.*

DR. VIRGINIUS DABNEY, Washington, D. C.

Stengel comments on the slow acceptance of diphtheria antitoxin by the profession at large despite the exhaustive study and scientific clinical demonstration, as contrasted with the eagerness and undiscriminating favor with which all sorts of vaccines and serums are now employed. This haphazard zeal has not been restrained by the natural check of ill effects, as there are practically never any, though Stengel is not willing to admit this. I have never seen a case where the use of vaccines could have been instrumental in any untoward result existing after their use.

The unthinking use of mixed vaccines and stock preparations, generally reflects no credit on the attendant, usually results in no benefit to the patient, and frequently does harm to a legitimate therapy which has a field of value restricted though it be. A suppurating ear with necrotic bone as a base is manifestly an improper field for this treatment, though it is so employed frequently, either through ignorance of the merest fundamentals of pathology, or lack of a proper interest in the study of the case. The inevitable failure should bring discredit upon the otologist, not upon the therapy.

On the other hand, the opsonic index with its complicated technic and the dreaded negative phase deterred many from using vaccines, whereas we now know that it is safe to ignore them both, watching vigilantly instead the clinical signs and symptoms as a sufficient guide. In this opinion I find myself in accord with Holden, who thinks that over the whole field of medicine failures are more frequent than successes. In ear disease this is not true, as thoughtful otologists do not use vaccines in every suppurative otitic disorder, nor as the only therapeutic measure. Vaccine therapy is distinctly and only an additional measure, and never to be undertaken to the exclusion of any and all the usual precautions. Moreover, even with this reservation, success depends much on the culturing, preparation of the vaccine and its method of administration; thus creating a wide margin of error, and, by the same token, of failure to benefit. While I do not wish to enter upon the bacteriologic technic I will add the final touch by saying that a vaccine is a delicate substance and one easily destroyed by a few degrees of heat in excess of that required to secure sterilization. A laudable zeal to attain this essential leads at times, I am sure, to a sterile vaccine, it is true, but also to an inert preparation. Thus again we see another cause of failure.

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*Presented at the nineteenth annual meeting of the American Academy of Ophthalmology and Oto-laryngology, Boston, October 20, 1914.

In chronic suppurative processes of the ear it is not always easy to secure the causative organism, largely due to reinfection on top of the basic trouble and the attachment of saprophytes to the decayed material. For this reason repeated reculturing both before and during treatment is necessary if we are to be sure of our bacteriologic diagnosis. Acute suppurative otitis media generally clears up so readily under the ordinary cleansing treatment that the temptation is strong to omit vaccines from the therapeutic armamentarium, yet the reports of McDonald, Weston and Kolmer, Conners, Christie, Jacobs and Dabney show that their use was of assistance in the cure of three times as many acute cases in thirty days as was experienced without this aid. Moreover, they were the product of the more virulent infections, such as scarlatina, influenza, typhoid fever, and diphtheria. Three years ago I used vaccines extensively in acute otorrhea, but I have since then modified my use to this extent, that I omit children of a neurotic strain, and wait for five to seven days before starting the treatment. This latter precaution allows the discharge to give some intimation of its virulency, and, consequently, necessity for vaccine. Moreover, it is known that a vaccine acts better after this pause than if given earlier before nature has well organized its phagocytic defense. Thus, it sometimes becomes apparent that the disease will yield without the use of vaccine. Where it is at all possible to get it, the autogenous preparation should always be employed; this has been firmly established not only as a scientific measure but on grounds of efficiency. (Wolfsohn, Kreuscher, Wright, Pearce, Dabney and many others.) The use of a stock preparation (save in one apparent exception to be noted later in my own work) is a leap in the dark and unscientific in the extreme.

The following are the organisms from which I have vaccines prepared, and experience has demonstrated to me that it is useless to experiment with other organisms, a lesson I have learnt only after much onerous research. The doses are based on the adult, to be reduced proportionately for the young: Staphylococcus pyogenes aureus and albus 250 million. Streptococcus pyogenes 25 million.

Bacillus of proteus type 30 million. Bacillus pseudodiphtheriae 40 million.

Injections are to be repeated every three or four days, and increased one-third, depending on the reaction and the progress of the disease. Nephritis, diabetes, tuberculosis and severe constitutional depletion are contra-indications. It is always wise to give an additional dose after apparent recovery, as it tends to prevent a relapse. Failure on the part of the patient to submit to this precautionary measure has caused just this set-back in my practice several times.

In a paper some three years ago I invited attention to one of the incidental effects of the use of vaccines, namely: the metabolic improvement and bettered physique. Similarly Bruce noted in patients afflicted with chronic mania, in whom lack of nutrition so often is a prominent symptom, that the use of autogenous vaccines was nearly always followed by increase in weight and improved metabolism. This same corrective influence is often observed under the administration of vaccines in the course of a stubborn middle-ear discharge, but is not to be accounted for solely by the cessation of the suppurative process (as it does not always cease), since metabolic changes are ordinarily slow after the local lesion ceases to poison. In long suppuration of the middle ear and in stubborn sinuses or unhealed wounds following the various mastoid operations, there is encountered often a septic condition, almost a cachexia, in a patient, whose anemia, depleted vitality, and loss of appetite are familiar to all otologists. The correction of this unnatural state and usually the pus-formation, too, is with the assistance of vaccine the result of one and the same process, which I interpret as an elaboration of the side-chain theory of Ehrlich. In brief, the receptors previously having in health the function of uniting with a food molecule and assimilating it, under diseased conditions unite with a molecule of toxin; thus shutting off that much nutrition from the body. Naturally, when the toxins are numerous, numerous receptors are pre-empted by them, and the metabolism of the body suffers proportionate detriment. Thus in destroying these toxins, the vaccine renders available for food assimilation receptors heretofore occupied with toxin assimilation.

Furunculosis of the auditory canal is an unusually stubborn, painful affection, lasting frequently from ten days to four weeks, but I have seen only one case which lasted as long as a week under vaccine treatment, and required as many as three injections, whereas I have seen a case of two months' duration cured after two injections. With this exception, all my cases have cleared up in less than six days and with only two injections. Consequently I regard vaccine as a specific for furunculosis of the canal, save where it is caused by diabetes, lues or tuberculosis, of course. The first injection generally relieves the pain in twelve hours, and the swelling is markedly less; the second dries up the discharge, if there is any, and causes all tumefaction to disappear. This result cannot be explained by the increased drainage in those cases which are incised, as incision alone has not so benefited other cases. Moreover, some of them had already ruptured, others had not and did not rupture. Again, we see cases which are flowing freely where all the symptoms continue despite the good drainage. Such confidence have I in the treatment here advocated that I have been able twice to diagnose diabetes from failure on the part of vaccine to help cases of furunculosis, though the internist who referred the case had no reason to suspect the glycosuria, nor had I till the injections failed to benefit. The following case should convince the most doubting of Thomases:

Case 1. J. D., a boy of 4 years of age, had been suffering for several days with earache and swollen face; when seen June 11, right canal was so tightly closed as to admit probe only with the use of considerable force. The whole right face was swollen, red and brawny; the lower eyelid edematous and the eye nearly closed. Temperature 100° F. Canal incised, half dram of pus escaped; 100 millions stock staphylococcus vaccine injected. Next day, June 12, a little more pus squeezed out; eyelid and eye practically normal; brawny area gone save pretragal gland; no pain; canal patulous, permitting view of membrana tympani which was normal. The patient felt so well that he did not return for six days, contrary to my orders; drop of pus wiped out of sinus; 150 millions stock vaccine injected. Had he received this three days earlier according to routine there would have been no pus and no sinus left. June 22, he was still well; no relapse. Case healed and well in all respects June 20. The culture showed pure staphylococcus aureus, and stock vaccine was given, as it takes from four to five days for the culture and the preparation, and the cases all yield as a rule before this time. However, the stock is not the ordinary commercial article by any means, but is prepared in the laboratory of the United States Army Medical School, and is drawn from seventeen strains of unusual virulence. This is only an apparent exception to the rigid rule to use autogenous vaccine, and is to be classed as one of the times when it was impossible to secure it. Instead of giving other clinical argument, I will say that I have seen a case of six weeks' standing clear up in a week with two injections and without any other treatment whatsoever but with the before-mentioned improvement in physique and color.

Where there is caries of any part of the auditory tract, vaccines can effect no permanent good. Where the discharge originates from the soft parts, their use can be of service, if the causative organism is isolated and secured. Herein is briefly stated the province and limitation of vaccine therapy in chronic suppurative otitis media, and in sinuses following operation on the mastoid, (Dabney). The granulating surfaces left in the latter class of cases seem prone to become sluggish and at times the cause seems to lie in re-infection or in a lowered resistance to that infection which has always existed.

Case 2. M. E. H., a child of 6 years of age, had been operated for acute mastoiditis and four months later the wound had been curretted because of failure to close. Seven weeks after this currettement she was brought to me, when the wound was observed to be two inches deep, three-quarters of an inch in diameter, and cone-shaped. An autogenous vaccine prepared from the culture of bacillus pseudo-diphtheriae, 10 millions, was given. After two injections, the granulations which had been pale, flat and glazed, not bleeding on manipulation, became raised into papillae, bright-red and easily made to bleed at the slightest touch. After an interval of six days an injection of 30 millions was made, and the wound was found to be one-half inch less deep; after another pause of ten days, 40 millions. Here we had to suspend vaccines, as the child had become highly intolerant of the pain caused by the needle. However, the impetus given the healing process was sufficient to close in five weeks a wound that had not healed in five months, and had shown no evidences of the reparative process for two months before the use of vaccines.

Case 3. E. D. M., woman of 23 years of age; radical mastoid done four and a half years ago, never dry though narrowed to a two-limbed sinus for past two and a half years. Facial neuralgia practically continuous for three years. Pale, sallow, neurotic, verging on melancholia; 10 pounds underweight.

On removing the cholesteatomatous deposit a pure culture of staphylococcus albus was obtained, and autogenous vaccine was given at intervals of a week, and later two and three weeks, the dose beginning at 250 millions and carried up to 800. Treatment covered the time from October 15, 1911, to December 22, with complete cessation of the discharge and firm healing, though the scar broke down on May 4, 1913, and July 1, 1914, only to heal under cleansing with peroxid and argyrol in a week. The neuralgia disappeared in first four weeks, returned twice a year later, but on drawing two carious wisdom teeth permanently disappeared. Patient became a totally different person, cheerful, gained 10 pounds in weight, has had no trouble save an occasional collection of hard wax mixed with detritus which requires only one treatment for its relief. The only internal treatment given was phosphatic emulsion of cod liver oil, which I employ in all mastoid cases that show any tendency to prolonged convalesence or caries.

Labouré reports a similar case, in which vaccine assisted the convalescence after a radical operation for the cure of an otorrhea of twenty years' standing. The operation alone did not accomplish the desired end till vaccines were employed.

Case 4. H. M., woman, aged 21; good general condition; bilateral suppurative otitis media for two months; similar attacks every winter for several years; never so severe pain or so profuse discharge as now. Very deaf, and mastoid quite sensitive on pressure over antrum; long polyp removed from left canal which it completely filled, attached to drum; 250 millions autogenous staphylococcus aureus given. Discharge ceased in eight days; second precautionary dose on eighth day; no return; deafness relieved by six inflations of tube.

Case 5. Exhibits the result of omitting the precautionary dose: V. T. T., female, 32 years of age, acute running ear for two weeks; 250 millions autogenous staphylococcus albus vaccine given and discharge ceased in ten days. Two weeks later, discharge returned as patient received but one dose. A second dose of 350 millions resulted in a cure in four days. The deafness, almost absolute in the affected ear, was relieved by the routine inflation.

Some of the cases given herein to strengthen my contentions have been reported in another paper, and some of the text is of necessity a quotation from it. The accompanying table needs no explanation, but is given as the most concise manner of summing up the results, which, after all, are like wisdom, "the principal thing." While I have given somewhat in detail only the successful cases, as the unsuccessful ones require only a record of failure, the table will show signal failures in abundance. In commending this therapy, let me repeat that I have no illusions on the subject, and that there is no royal road to health for afflicted ears, nor should it be used without all the other means of treatment commonly employed by the experienced. Every case I have ever handled has been given the most searching routine treatment known to us all as of benefit, and I have not so stated in each case, as it was deemed unnecessary.

Author	Disease	Number	Cured	Improved	No change	
McDonald	subac. O. M. P.	13	13			
	chr. "	17	3	5	9	
Weston & Kolmer	subac. O. M. P.	100	83	10	7	
Patterson et al.	" "	10	7	0	3	
	chr. "	17	3	3	11	
Conners	subac. "	7	2	3	2	
Christie	" "	6	6			
Jacobs	chr. "	6	2	4		
Thomas	" "	1	0	0	1	
Hoobler	" "	2	2			
	mastoiditis	1	1			
Beck	chr. O. M. P.	7	0	7		
Scott	mastoiditis	1	1			
Sill	subac. O. M. P.	124	70	22	5	(3 operated for mastoiditis; 23 disappeared)
Dabney	Furunculosis	36	36			
	chr. O. M. P.	22	7	5	10	(2 diabetics)
	subac. O. M. P.	23	18	0	5	
	mastoid sinus	15	9	4	2	" "

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TUBERCULOSIS OF THE PAROTID GLAND.*

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This paper discusses a somewhat rare condition, apparently especially rare in this country, as only four cases have been reported, while only eleven cases have been reported abroad, as far as my knoledge goes.

For our knowledge of the pathology of this condition, we owe much to the French, German and Italian authors, while as to etiology, the most complete work has been done by George B. Wood, in this country, and Nadel and Pouget in Europe.

The first case to be reported was that of De Paoli, 1893. Since that time, cases have been reported by Von Stubenrach, Legueu and Marien, Bockhorn, Meslay, Lecene, Kuttner, Parent, Frank and others. Fiorvanti refused to add a case of Danielson's because the parotid lymph glands as well as the salivary were involved. This does not seem to be a proper view to take, with our present knowledge of tuberculosis and infection in general, as we do not know how many apparently healthy individuals are affected with tuberculosis or how infection has taken place.

The avenues of infection are probably the same whether the gland is involved primarily or secondarily. In secondary involvement it may be said that the vitality of the gland is lowered through lack of proper nutrition, and the saliva changes to such an extent as not to promote proper oral digestion; thus giving a viscious circle.

Lockard quotes V. Harris as stating that he found a lack of ptyalin in the saliva of tuberculosis patients, and, obtaining the glands post-mortem, found them affected by fibrosis. This would coincide with the above statement. He examined the sub-maxillary and parotid glands.

Before going into the controversy over etiology it might be well to give a few extracts of case reports. Most cases are primary or at least believed to be so at the time of reporting.

The first case of De Paoli's, a male, age 33, without previous personal or hereditary history, presented himself with a swelling of the left parotid about the size of a hen's egg, which had grown to this size in six months. The patient further presented a facial paralysis on the affected side. A diagnosis of sarcoma was made, and the tumor removed. Examination proved it to be tuberculosis. He does not venture an opinion as to how the infection had taken place.

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In 1894, von Stubenrach reported a case which presented some different characteristics. A male, aged 60, who had suffered from stomatitis and accompanying salivation, presented with a small fluctuating mass in the right parotid region, which was very painful. Pathological examination: a large, psuedo-cyst, with liquid contents similar to saliva, and with a wall about 2 cm. thick which presented internally tuberculous granulations, while external to these the capsule consisted of fibrous, connective tissue, with the remains of excretory canals, and of degenerated glandular elements, atrophied and altered in various ways. These changes and tubercles which were mostly situated around the excretory ducts led von Stubenrach to believe that infection took place through Stenson's duct.

In 1895, another case was reported by De Paoli. The patient was a girl of 19, whose left parotid was involved, and in spite of his previous experience he made a diagnosis of fibro-sarcoma. Pathological examination after removal proved it to be tuberculous. This can be explained again by the fact that there was no personal or hereditary history of tuberculosis.

In the same year Leguen and Marien reported the case of a girl of 13 years, in whom there had formed during a long period a swelling as large as a nut covered with skin, and apparently adherent to the left parotid gland. A diagnosis of adenitis was made but examination disclosed many tubercles diffused in the parenchyma of the gland, and a central softened mass.

The case Bockhorn reported in 1897, was that of a lady, 39 years old, with no previous history of tuberculosis. There was found a swelling of soft consistency, which had formed in a period of three months in the left parotid region. It was diagnosed clinically, as a syphilitic gumma. Pathologically it was recognized as tuberculosis of probable vascular origin on account of the greater abundance of tubercles in the region of the vessels.

In 1897, Kiesow reported a case in a girl of 13 years. Parents and sisters well. Swelling in both cheeks, began three years ago, and has gradually enlarged. Not painful. Patient small, undersized and stupid. In the neighborhood of both tempo-mandibular joints, swellings the size of a pigeon's egg, giving the appearance of mumps. Right sharply circumscribed tumor, while the left showed a large tumor, extending into smaller growth above and into parotid gland; not sharply circumscribed. Fairly hard. Lungs, heart, mouth and pharynx normal. No enlarged lymph glands. Diagnosis: bilateral sarcoma. Histological examination, early form of tuberculosis.

In 1898, Mesclay and Parent reported the case of a man of 61 years, family history negative, who had suffered previously from a right otitis and from dental caries. He gave a history of having noticed for three months a swelling in the region of the left parotid gland, hard and irregular, painful for last month. The clinical character of the swelling and its evolution seemed to the authors to be that of a mixed tumor of the parotid. Partial enucleation of parotid with temporary facial paralysis. The pathological examination showed the characteristics of tuberculosis, probably of hematogenous origin, because as in the case of Bockhorn, the greater entity and diffusion of the tubercles, corresponded to the vessels. Recovery with complete healing.

Lecene, in 1900, reported having seen a young man of 29 years, whose sister had died of pulmonary tuberculosis. A mixed tumor of the right parotid was diagnosed and removed. Examination of the section showed tubercle of hematogenous origin. Tuberculous granulation tissue and tubercle bacilli without caseation.

Mintz, in 1900, reports the case of a child of 3 years with a lesion in the left parotid which, on pathological examination, proved to be tuberculosis of the gland. He found all stages of inflammation and caseation.

Kuttner, in 1900, records a case in a male of 18 years. Family and personal history negative. Fluctuating swelling in left parotid, with pus discharging through duct. Two operations followed by temporary facial paralysis with recovery.

Scheib, in 1900, reported a case of a girl of 15, who for four weeks had a swelling in right cheek, painful at night for last fourteen days. Cough without expectoration, loss of appetite and night sweats, temperature 38.1°. Opening of Stenson's duct shows a red protuberance, the size of a small pea. Tumor softened in the middle, and on opening, pus found containing tubercle bacilli. Died one month later of pulmonary tuberculosis. Author believed it to be hematogenous infection, as blood vessels in region of abscess were found thrombosed on post-mortem examination.

Faure-Darmet's case in 1901 was that of a man, aged 42, who presented three swellings which later broke down and discharged through these fistulous openings. Guinea pigs were inoculated and found to have tuberculosis when killed, but the author admits there may have been errors. The case was diagnosed as cutaneous actinomycosis. Lungs normal. Operated by curetting. Illustration of case resembles author's except that it is a unilateral involvement.

All cases reported by American authors have occurred since 1900. The first was reported by Frank in 1902, and was found in a male child of only 22 months. When seen by Frank it was a swollen mass in the right parotid, which had been opened six weeks previously and refused to heal. Examination showed it to be tuberculosis of the parotid.

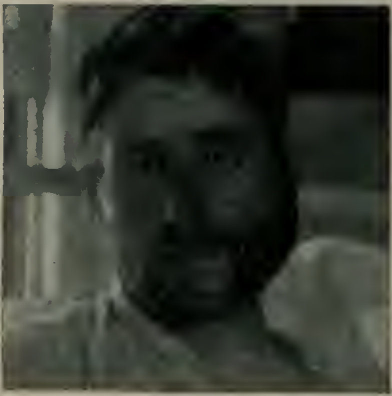

Figure 1. Author's case. Left Parotid.

Scudder recorded a case in 1902. Family history negative. Personal history, always well; married twenty-six years; has three children. Present illness: five years ago a small swelling appeared just below the lobule of the right ear. Three years it grew slowly, for over a year it increased perceptibly, but painlessly. She has had no subjective symptoms. Her hearing is good. There have been no pressure disturbances.

Physical examination: A large, fleshy, well-developed woman. In front of and below the right ear is a broad spherical swelling, about two inches in diameter. It is hard and rounded, with irregular, indurated borders. It is slightly movable upon the parts beneath. It is not attached to the skin, nor is it tender to palpitation. The chest is negative.

Operation: Mass removed through a curved incision. Capsule adherent closely to the surrounding parts. Upper part of the neck carefully dissected. Stenson's duct and facial nerve divided, as they were involved in the disease. A few small glands were removed near the tumor. The wound healed quickly. She left the hospital one week after operation. A year and one-half following the operation examination finds no recurrence at the seat of the original disease. The cicatrix is soft and unattached to the parts underneath. There is a right facial paralysis. Pathological report: A fragmentary tumor from the parotid region. Microscopic examination showed parotid gland structure in which were numerous small foci composed of epitheloid, small, round and numerous giant cells, with cheesy degenerations: Tuberculosis.

In 1903, George B. Wood reported the case of a man, age not given, who presented a tumor-mass one and one-half inches across, in the parotid region, which proved on examination to be tuberculosis. Wood believed that infection took place in this case through the tonsil to the parotid lymph glands and then to the salivary gland.

Borchardt in 1903 states that a woman, 51 years old, presented with a swelling in front of the right ear. Parents healthy, but three sisters died of tuberculosis, and daughter operated for "glands" one year ago. Patient always healthy. Heart and lungs normal. Swelling present for thirty-five years but never painful. Now the size of half an orange, seems to consist of several lobes and of uniform consistency. Histological examination showed tubercles in salivary and lymphatic glands, but no areas of caseation. Considered lymphatic infection either from the ear, teeth or gums. Teeth and opening of Stenson's duct not examined.

In 1904, Cole reported the case of a colored male who gave a history of lues eight years previous and from whom tuberculous cervical glands had been removed five years previously. There had also been an attack of pleurisy only nine weeks before presentation of patient. Examination: left parotid region presents tumor size of a walnut, while right presents one the size of hickory nut. As case had not been operated when report was made, pathological report could not be given, so there is a question of doubt.

In a recent letter from Dr. Cole, he adds the following: The patient left the hospital to return for operation, but never came back and nothing further was heard of him. The guinea pig inoculated with the pus aspirated from the glands developed tuberculosis. It is therefore impossible to state whether or no the tuberculosis primarily involved the parotid or simply the lymphatic tissue, which, as is known, is present in this region.

In 1905, Puppel reported two cases, one, a girl of 15, very pale and ill nourished, who was operated on for tumor in the parotid, which proved to be tuberculous. Patient developed general tuberculosis three weeks later. The second was a young man of 26. His mother died of pulmonary tuberculosis some years before. Father suffering from pulmonary tuberculosis. Sister well. Patient operated two years ago for tuberculosis of the right hand, and had swelling of the right ankle immediately after. At present has fistula and suffering from night sweats. He is of middle size, pale but well nourished. Chicken breasted. No cough or expectoration. Heart normal. Marked swelling, hard but not painful, in the right parotid region. Removed and glands curetted. Wound healed in two months, with slight paralysis of facial nerve. Numerous tubercles in parotid tissue. Histological diagnosis: chronic tuberculosis.

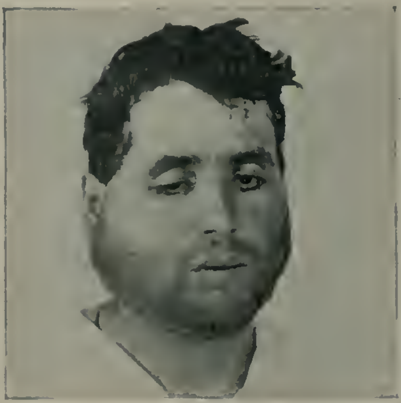

Figure 2. Author's case. Right parotid which became swollen six weeks after left.

Danielson's case reported in 1907, was that of a peasant 26 years of age. No family or personal history given. For two months he has noticed a painless swelling in right cheek, which has gradually increased until it touches the lobe of the ear. Histologically the gland is involved, so that no normal tissue can be found.

In 1910, Fioravanti, after reviewing a number of cases, reports the case of a woman, age 34, of whom he says: "She has nothing noteworthy in her personal or family history; has always led a busy life and has been very well. She often suffered from toothache, however, and recently had to undergo extraction of a right decayed molar. (He does not say whether upper or lower, or whether first, second or third, which is quite important, as relating to the opening of Stenson's duct.) About a year ago she noticed a swelling, about as large as a small nut, in the right parotid region, which kept on increasing in size until it reached the dimensions of a pigeon's egg, but did not cause any painful sensations either spontaneous or upon pressure. The doctor, whom the patient consulted, advised a surgical operation, to which she consented. This consisted in an incision, from which issued a moderate amount of serous fluid, opalescent and very similar to saliva, so that the operator suspected it was a salivary cyst. Escape of the fluid did not cause the complete disappearance of the tumor, which, though greatly reduced in dimensions, remained evident and stationary up to six months, when it began to grow again, rapidly reaching the size of a hen's egg, and causing difficulty and pain in the mastication of food. It seems the patient did not have any fever. Frightened by the recurrence of the tumor, by its rapid growth, and the disturbance produced by it, she decided to submit to another operation and therefore entered the hospital.

Post-operative history was normal. After thirty days the patient was discharged cured, excepting that there was a persistent paresis of the facial, which existed before the operation.

Pathological examination: Examination of the tumor presents the dimensions of a hen's egg and seems incompletely closed by a capsule of thick connective tissue of a rosy gray color. Surface not smooth, but irregular and contorted. A section through its entire substance reveals that the central part is composed of a focus of degeneration, with ragged walls and containing a small quantity of very thick pus. In the interior are seen extensive zones of caseous aspect alternating with fibrous zones of reddish gray color. On some points in the peripheral portions, one can recognize the glandular structure with the characteristic lobular arrangement, although even here there are occasional small foci of softening and caseation.

Nadel and Pouget, in 1911, report the case of a male of 50 years of age, baker, with a small tumor in the right cheek, a little in front of the parotid. Two sisters died of tuberculosis, one sister living and well at 60. Nothing of interest, except lobar pneumonia at 45 and syphilis at 46. Number of injuries, especially burns. Six months ago had pain in region of the last two upper molar teeth, ending with abscess in cheek which opened externally, but yielded to treatment in fifteen days. Three and one-half months later pain returned and patient noticed development of tumor at sight of fistula, which has grown in two and one-half months to the size of a small nut, adherent to the parotid gland. Patient of splendid physique, florid countenance, strength normal, respiratory apparatus normal, no cough. Heart normal, urine abundant and normal. Tumor removed, and an examination found it to be tubercular.

They also report the case of a woman, 74 years, with tumor in right parotid which had been present for two months, but for the last eight days growth had been very rapid and now presents a softened area of violet-rose color, at height of lobule of ear and anterior border of masseter and of the size of a hazel nut. Mother died of tuberculosis at 45. Patient was sent to country at 13 because of weakened condition, although not coughing. Had rheumatism at 20, of which traces still remain. Examination of chest negative. Only teeth present were two posterior lower molars. Opening of Stenson's duct normal. Diagnosed as cyst or suppurating gland. Histological examination showed tumor to be one enormous tuberculoma involving salivary gland tissue.

Author's case: Patient, National Jewish Hospital for consumptives, H. A., male, age 24, born in Russia. Family history negative. Personal history: Well until two years ago when he contracted pulmonary tuberculosis. One hemorrhage one and one-half years ago, but none since. Condition at present time very good. Weight 148 pounds, which is about normal for height of five feet ten inches. Sputum: muco-purulent, few bacilli, pus cells, staphylococci. Diagnosis: Chronic catarrhal tuberculosis.

Present trouble began June 15. First examined by interne June 20: Swelling of left parotid gland. June 22, temperature 100°, pulse 124. Swelling increased. June 23, first seen by author.

Examination: Teeth normal, except upper left first molar, also right second molar absent, filling in distal of first molar; mucous membrane of the mouth normal, except a slight swelling and redness around orifice of Stenson's duct upon left side; nose, pharynx and larynx normal. Very slight redness of the left membrana tympani and swelling on anterior wall of cartilaginous portion of canal. Hard swelling of the left parotid gland, simulating an attack of parotitis. As no history of a previous attack could be elicited, it was so diagnosed in face of the fact that the patient admitted at this time that he had received a blow from the fist of another patient in an altercation a few days previous.

June 27, some softening. June 28, using ethyl chlorid spray, opening was made beneath the angle of the jaw, cutting through the skin only, further separation of tissues being completed with forceps, evacuating about one and one-half ounces. Rubber drainage tubes introduced. Examination of pus showed only diplococci present. Discharge of pus mixed with salivary secretions continued.

July 25: In dressing, interne opened another abscess which apparently was walled off from the original cavity by an intervening gland septum.

August 2: Temperature 100°, pulse 110. Under chloroform anesthesia the cavity was curetted, bringing away a large amount of gland tissue. Microscopical examination of this tissue showed large numbers of tubercle bacilli, but no diplococci.

August 4: Rapid swelling of the right parotid. This had been anticipated as the patient had complained of pain in this region for three or four days previous. August 8: Temperature 100°, pulse 110. Under chloroform anesthesia, abscess was opened under angle of jaw. Pus showed not only diplococci, but tubercle bacilli present in large numbers. Pus and saliva continued to discharge from the wound. Bacteriologist at sanitarium reported the diplococci found to be identical with the organism of parotitis. Smears directly from pus showed diplococcus five-tenth to one and a half microncs in diameter, intracellular and extra-cellular; gram positive, no capsule; no development in ordinary media but abundant growth on mixed sterilized saliva, with glycerin agar agar; stopped propagating at 38 degrees C.

September 10: Right still shows discharge of pus and saliva, while left only discharges saliva through fistula. November 8: Right healed. Left salivary fistula, after which patient was not well, although he lived for two years, finally succumbing to pulmonary tuberculosis.

One very interesting point in this case is that we had no facial paralysis on the left side, although nearly the whole parotid gland sloughed. The connective tissue septa and nerve trunk probably resisted infection. Infection in the left or first gland affected may have been either hematogenous, or canalicular in origin with properties of the latter, while the right was undoubtedly canalicular, i. e., through Stenson's duct. The right side showed some dropping of the eyelid, which recovered.

Although tuberculosis of the parotid gland is rare, it must divide honors with the sub-maxillary, only four cases of which have been reported.

Aieroli in 1895, Zoux in 1897, Arcoles in 1900, and Gilmer in 1902. Zoux did not make a histological or bacteriological examination, and therefore his case is open to question.

As oral tuberculosis is rare, there must be some reason, for the oral cavity is probably exposed to infection more frequently than any other region of the body, in fact almost as much as the skin, which is infrequently affected.

It may be due to the protection given by the stratified squamous epithelium, that the oral cavity and skin escape. We know that epithelium is not affected by the tubercle bacillus, but whether the bacillus is rendered inert, for the time being, by passage through these cells and must lodge in a lymph gland to regain its virulence, is a question.

From the standpoint of oral sepsis, or what we might call oral transmission, the work of Gilberti is, to say the least, interesting.

To determine how far tubercular infection can affect via the oral mucous membrane, he removed the cervical and inguinal lymph glands of thirty children who had died of various diseases, but known to be tuberculosis. Each of the glands were macerated separately and injected into two sets of guinea pigs, all of which had been subjected to the tuberculin test, with the following results: Of those injected with the cervical extract, thirty in all, eleven died of tuberculosis, seventeen died of other causes inside of one month, and two killed after three months showed no signs. Those injected with inguinal gland extract, showed the following results: Two died of tuberculosis, five of intermittent troubles, and twenty-three showed no sign of tuberculosis.

In concluding the author propounds the following queries: 1. Is there an anatomic path from the mucosa of the mouth to the glands and right heart? 2. If every bacillus passes through the lungs, why is not pulmonary tuberculosis more common in infancy than it is as compared with other tuberculous localizations?

There seem to be two distinct types of parotid tubercle: 1. The chronic or fibroid type which is encapsulated and may not produce symptoms for months or even years. 2. The acute inflammatory type which is diffuse and runs its course in a few days or a few weeks.

The recognized avenues of infection are hematogenous, lymphatic and canalicular. Lymphatic infection and hematogenous infection are hard to differentiate on account of the interlacing of the vessels, a point mentioned by Nadel and Pouget.

Hematogenous infection may take place from any primary focus or through wounded oral mucosa. Lymphatic most frequently through the tonsil although infection around the third molars, draining as these lymphatics do into the glands at the angle of the jaw following retrograde stream, may infect the parotid lymphatic glands, and involve the salivary gland. This happens in case of epithelioma of the tongue, or mandible, so why not in tuberculosis?

Infection through the lymph streams may occur from the external auditory canal, in case of a tuberculous ear, which occurred in De Paoli's first case, but considering the frequency of aural tuberculosis, why is the parotid not more frequently affected? The lymphatics from the external two-thirds of the eyelids and from the upper part of the nose also pass into the parotid lymph nodes, but these parts are very rarely affected with tuberculosis. Furthermore the posterior buccal lymph vessels pass to the parotid lymph nodes and penetrate the muscle in the region through which Stenson's duct perforates.

Canalicular seems to the author the most probable avenue, as it probable is in parotitis. It is not necessary that infection of the papilla at the opening of duct takes place. One of the author's cases of tubercular abscess of the cheek which ulcerated through the duct and discharged casesous masses and serum into the mouth caused no infection of the papilla.

Pinoy's experiments, as quoted by Puppel, of infection of the gland experimentally by injection of bacilli into carotid and into parechyma as well as by introduction into duct after paralysis of the secretory nerve, would tend to show that infection may take place in any of the three ways.

The prognosis is usually good even in secondary involvement, so far as the local disease is concerned. The diagnosis it seems is only made histologically and bacteriologically, as in no one of the above cases was a correct clinical diagnosis made.

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Syphilis of the Esophagus. UDO J. WILE, *Am. Jour. of Med. Sci.*, August, 1914.

The writer refers to the great susceptibility to syphilitic lesions of the mouth and pharynx, as contrasted with the relative lack of susceptibility to such lesions of the other portions of the digestive tract. The rectum is the sole exception to this rule. He gives a resume of the cases of syphilis of the esophagus from the literature of the subject, and reports a case occurring in his own practice. He believes the condition is not so infrequent as the scanty literature of the subject would indicate. PACKARD.

AFFECTIONS OF THE LINGUAL TONSIL AND THEIR TREATMENT.*

DR. CHARLES C. BIEDERT, Philadelphia.

The so-called lingual tonsil is really not a tonsil at all, but simply a mass or collection of lymphoid tissue at the base of the tongue and in front of the epiglottis. This collection of lymphoid tissue varies greatly in size and shape, oftentimes being nothing more than a rather close aggregation of separate nodes, giving simply a roughened appearance to the base of the tongue. At other times it constitutes rather large masses which may be more or less pendulous.

The lingual tonsil forms the lowest portion of the lymphatic ring in the neck, known as the lymphatic ring of Waldeyer, the other portions of the ring being formed by the two faucial tonsils on either side and the pharyngeal tonsil above. Owing to the situation of the lingual tonsil and the difficulty of inspecting it, it not being seen upon the ordinary examination of the throat, the general practitioner is very likely to overlook affections of this tissue.

For the careful examination of the lingual tonsil it is necessary to use the head-light and the laryngeal mirror. I have frequently seen patients complaining of a sore throat, and upon the ordinary inspection of the throat nothing abnormal could be found, but by using the laryngeal mirror serious disease was found in the lingual tonsil, thus revealing the source of the soreness.

The lingual tonsil is subject to all the inflammations and diseases that attack the other tonsils and tissues of the throat. I have frequently seen the extension of a follicular tonsillitis down to and involving the follicles of the lingual tonsil. We find simple inflammation and hypertrophy, lingual varix, tuberculosis, syphilis and malignant disease of the lingual tonsil; mycosis pharyngens also frequently involves the lingual tonsil and various benign tumors have been observed. These conditions are all rather rare. I, myself, after rather a large experience in the examination of throats, have only seen one case of carcinoma of the lingual tonsil and probably six or eight cases of syphilis of the lingual tonsil. Syphilis is usually the tertiary manifestion or syphilitic gumma. Lingual varix is of frequent occurrence and often causes a great deal of trouble, producing an irritative cough, which after a time may cause one of the vessels to rupture, thus producing an alarming hemoptysis. This hard irritating cough of undemonstrable cause which lingual varix produces interferes with the rest of the patient, as a consequence of which he becomes very much run down and loses flesh, so that he and his friends fear tuberculosis of the lungs. I have on more than one occasion been able to demonstrate the source of the hemoptysis as coming from a ruptured vessel of the lingual tonsil and to assure the patient that his lungs were not diseased, and have by the proper treatment reduced the swelling of the lingual tonsil and eradicated the cough, and effected a complete recovery of the patient. Thus, in hemorrhage from the mouth or throat, do not fail to make a careful examination of the lingual tonsil for the source of the bleeding.

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*Read at the meeting of the Clinical Society of the Episcopal Hospital, Philadelphia, September 21, 1914.

Probably one of the most frequent affections of the lingual tonsil is simple hypertrophy, the symptoms of which vary. In some cases we will have a hard, dry, hacking, unproductive cough, especially worse at night or when the patient lies down. This cough may continue for months or years and be the only symptom complained of, as was the case in one patient who came under the writer's notice, a woman, who had a peculiar cough for twenty years by which she was known to all her friends. In this patient the cough was worse whenever she would get in a closed place, such as a theater or in church, and her advent into either of these places usually caused a procession of cough drops and cough lozenges to be passed to her from all directions by well-meaning and sympathizing people, until she finally had to remain away from public gatherings of all kinds. This cough of twenty years' standing was finally cured by the recognition and proper treatment of the cause—a simple hypertrophy of the lingual tonsil.

Cough is usually the predominant symptom in hypertrophy of the lingual tonsil, but in some cases we do not have any cough. The patient will complain of a sense of fullness in the throat or of a sensation of a lump in the throat, which they can neither swallow nor bring up (the so-called globus hystericus). Others complain of a tickling, prickling or burning sensation in the throat. It is surprising to what an extent these symptoms of simple hypertrophy will in some cases of nervous people be carried, as in one case which came to my notice, that of a nervous woman who thought she had some serious trouble with her throat and got herself worked up to a highly nervous state, in which she imagined that she could not swallow and that her throat was gradually closing, that she could not get her breath and that she was gradually choking to death. These symptoms were all relieved by the recognition of the cause, and by instituting the proper treatment for it.

Mycosis of the lingual tonsil usually occurs in association with mycosis of the pharnyx and tonsils. It causes a sensation of fullness, with tickling or prickling sensation in the throat. Upon examination we find the lingual tonsil dotted all over with whitish spots, somewhat raised from the surface and rather adherent, but they can be picked off and if placed under the microscope the diagnosis can be confirmed by finding the leptothrix buccalis, the causative fungi, one of the yeast fungi.

To recapitulate, then, we have the following diseases of the lingual tonsil in the order in which we find them most frequently: 1. A simple hypertrophy, causing slight symptoms of fullness and irritation in the throat, with cough. 2. A more or less greater enlargement in which the symptoms may be very pronounced. 3. Lingual varix, in which we have in addition to a hypertrophy of the tonsil, an enlargement and dilatation of the blood vessels coursing over the tonsil. The vessels in some cases have been known to rupture and cause hemorrhage simulating hemorrhage from the lung. 4. The extension of a follicular tonsillitis to the follicles of the lingual tonsil, or in some cases where the faucial tonsils have been removed we often find a follicular lingual tonsillitis in association with a follicular pharyngitis. 5. Mycosis of the lingual tonsil, usually associated with mycosis of the pharnyx. 6. Syphilis of the lingual tonsil, usually gumma, although we do culosis of the lingual tonsil is rare, but is sometimes met with find mucous patches as an extension from the pharnyx. 7. Tuber- in advanced cases of tuberculosis of the lungs. 8. Malignant disease of the lingual tonsil is very uncommon, and, lastly, we may have any of the benign tumors affecting the lingual tonsil.

Diagnosis: The diagnosis of diseased conditions of the lingual tonsil cannot be made without the use of the head-mirror and laryngoscope. By having the patient grasp the tongue and pull it well forward we can then with the laryngoscope make a careful examination and arrive at the diagnosis.

Treatment: The treatment of lingual tonsil-conditions is, as a rule, very simple. For the cases of simple hypertrophy, I have found that the application of a glycerole of iodin solution gives the best results. This is composed of iodin, 12 to 16 grains, and iodid of potassium, 24 to 32 grains to the ounce of glycerin. I apply this solution by means of a cotton swab. I have the patient pull the tongue well forward and am careful not to get any of the solution on the laryngeal side of the epiglottis. The U. S. P. offiicial glycerole of tannin would be my second choice as an application in these conditions. Usually three or four applications of either of these remedies, made at intervals of two days, suffice to relieve the most obstinate cases. If it does not, it may then be necessary to cauterize the lingual tonsil, using tri-chlor-acetic acid, chronic acid, or preferably the galvano-cautery. In using these cauterized agents great care must be exercised to limit the area cauterized to the lingual tonsil. In rare instances it may be necessary to remove a piece of the hypertrophied tonsil with the MacKenzie lingual tonsillotome.

The treatment of lingual varix is pretty much the same as that for simple hypertrophy. If we have one of the vessels bleeding it should be closed by searing it with the electric cautery.

In the treatment of mycosis of the lingual tonsil, I have found that applications of silver nitrate, 60 grains to the ounce, give the best results.

Syphilis, tuberculosis and malignant diseases of the lingual tonsil are best treated along the general lines laid down for the treatment of these diseases in any other part of the body.

1513 North Seventeenth Street.

Vicarious Menstruation. M. A. SHLENKER AND A. E. FICKLIN, *New Orleans Med. and Surg. Jour.*, June, 1914.

The authors report a case of vicarious menstruation in a woman of nervous disposition but otherwise in normal condition. Menstruation commenced at sixteen but manifested itself entirely by bleeding from the nose. After three of these periods, which appeared at regular monthly intervals and persisted for three or four days, menstruation became normal although accompanied by much abdominal discomfort. The case was presented as suggesting a neurotic element in vicarious menstruation. There were no genital abnormalities. SCHEPPEGRELL.

AN UNCOMMON CASE OF NASAL HEMORRHAGE.

Dr. John A. Thompson, Cincinnati.

G. M. O., aged 63 years, was referred to me by his physician, Dr. S. S. Halderman, November 23, 1912. The symptom for which he sought relief was frequent attacks of nose-bleed. At times the flow was so free that his death from exhaustion was feared. These attacks had recurred with increasing frequency for several months. Examination of his nose at his first visit showed that the right middle turbinate was carious. There was pus in the anterior ethmoid cells. Clotted blood was adherent to the diseased membrane over these cells. The right inferior turbinate was enlarged, blue in color and irregular in shape.

The diseased ethmoid cells from which the blood was oozing when he came to the office were at once opened and the diseased portion of the middle turbinate removed.

The packing was taken out of the nose the next day and on the second day after the operation the patient went home. A specimen for microscopic examination was removed from the inferior turbinate. Dr. F. B. Samson later reported the specimen to be an angioma.

December 2, I was called to Portsmouth, since he was having a worse hemorrhage than any that had occurred before. This time the angioma was bleeding and at 1 a. m., under cocain anesthesia, the whole of the diseased inferior turbinate was removed. Some granulation tissue from the middle turbinate region was snared off at the same time.

January 23, 1913, the patient returned to the office with a history of bleeding from the remaining portion of the right middle turbinate and the diseased portion was removed. The bleeding was only temporarily checked by this operation and on March 20 the patient returned with a history of frequent epistaxis.

There was an old specific history in the case; so operation wounds did not heal promptly. Some granulation tissue was curetted from the site of the last operation and the patient sent to Christ Hospital for observation. Blood pressure tests were only a little higher than normal and only once was there a trace of albumin found in the urine. All bleeding stopped, while the patient was quiet in the hospital.

April 29, 1913, he again returned to the office with a history of repeated hemorrhages of increasing severity. The external wall of the nose whence the bleeding had previously been coming was normal scar tissue. This time the blood was flowing from a superficial ulceration low down on the right side of the septum. Nitrate of silver, 12 per cent solution, was applied and the nose packed. He returned home and under the care of his family physician the bleeding was controlled; so he had no more dangerous attacks for a time but was never entirely free from mild hemorrhages.

October 10, he called at the office and reported himself in good condition. December 5, he again returned with a history of profuse and frequent nasal hemorrhages. The septal cartilage was found to be softened and it was believed that the condition of the cartilage prevented a cure of the inflammation in the overlying mucosa. All the later hemorrhages had been from the septum in the right nostril.

December 11, 1913, a submucous resection was made and the softened portion of the septal cartilage removed. The incision was made through the healthy mucous membrane in the left nostril. Healing was prompt and there have been no more hemorrhages.

There are two unusual features in this case. The right inferior turbinate body was all angiomatous tissue and when it started to bleed the hemorrhage could be controlled only by the complete removal of the tumor. The second unusual feature was the method of cure. If anyone has ever done a submucous resection for the cure of hemorrhage before, I have not seen a report of the case. One case has been reported where frequent nose-bleeds were stopped by a submucous resection, but the operation was not done to check them.

628 Elm Street.

Primary Lupus of the Larynx. E. Mayer, *Med. Record,* June 27, 1914, p. 1162.

Three cases of lupus are presented, two of them primary. The affection is rare and is a chronic disease with but the slightest symptoms. It is usually accidentally discovered and the prognosis as to life is relatively good. Ed.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Regular Meeting, May 7, 1914.

DR. J. H. GUENTZER, CHAIRMAN.

DISCUSSION OF DR. FREUDENTHAL'S PAPER.

(*Continued from page 764, August, 1914.*)

If we can clean off the secretions from the surface at frequent intervals and keep it approximately clean, we can avert the secondary infection which causes a good deal of the trouble and much of the dysphagia, and so give the patient much relief from the pain. In addition, the frequent cleaning of the surface favors the healing of the ulceration.

The bulb is removed from the medicator, the glass is attached to the tube of a fountain syringe, and the larynx is irrigated.

It requires a little skill on the part of the patient to make use of theso irrigations, for if not done skillfully they may cause coughing. The patient pinches the rubber tube, and introduces the glass into his mouth. When properly placed, he says, "Ah" and opens the tube by releasing the pressuro with his finger.

At first it is difficult, and only a small amount of fluid is allowed to enter the mouth, but a skillful patient soon becomes accustomed to it and can keep the tube open for a long time, and get half an ounce of fluid into the throat. It requires a little skill on the part of the patient and only those should use it who can acquire its use. Dr. Yankauer said that he had not had a large experience in the use of these irrigations, but he hoped that those whose clinical facilities would permit would give it a fair trial; for if the larynx can be kept clean and prevent the secondary infection which usually follows every infection of tho throat a great deal could be accomplished in the treatment of laryngeal tuberculosis.

DR. HERZIG suggested the employment of urea hydrochlorid for the relief of pain in these cases. He had used it in 10 to 20 per cent strength. He usually injects 5 to 10 minims of a 4 per cent solution at the junction of the nerve, the most painful portion, and the patient is comparatively free from pain for one to two days, and in this way the larynx is given a rest.

DR. GUTTMAN expressed his appreciation of the way in which Dr. Freudenthal had treated the subject, but had missed one thing, that is the ignipuncture, which had been recommended some years ago. He did not think that enough emphasis is laid on this method of treatment.

DR. FREUDENTHAL, closing the discussion, said that we often send patients to the Adirondacks where there are men who know how to treat pulmonary conditions. They are also sent to Liberty and other places, but a gale that is blowing at the rate of sixty miles an hour is not good for many patients afflicted with laryngeal tuberculosis.

He had not seen the zinc inhaler used for stopping a cough, but would try it. He could not see any objection to the use of powder. The older laryngologists used hardly anything else. They had no sprays. It is used abroad a great deal. He himself has used zinc oxid and alum, and it worked. The powder must be absorbed, for the patients have no pain afterward.

He intended to try Dr. Yankauer's device, for the patients should be able to cleanse their larynges themselves, and afterward apply some other medication. If we can enable them to do this, we will have gained a great deal for them.

The injection of urea hydrochlorid suggested by Dr. Herzig was a new idea to him, but he could understand how it would act quite as well as alcohol, and perhaps better.

He had mentioned the igni-puncture referred to by Dr. Guttman. He had not been able to read the paper in full on account of the shortness of the time, but he employs it in solitary rather than in diffuse ulcerations.

In reply to an inquiry from Dr. Cocks as to what he thought was the best climate for laryngeal tuberculosis, Dr. Freudenthal said that that was a very difficult question to answer, but that in general it was about the same as for tuberculosis of the lungs. Some persons feel best at the seashore. Formerly patients were not sent to the seashore, but persons with a dry larynx do better when they go to the sea. This is frequently done in France, and he himself often sends his patients down to Coney Island in winter, and it does them good. Our seashore here is too hot for some patients in summer; they can go to the mountains. Other affections of the larynx do better in a very high, dry climate, like Arizona. As a general rule we cannot say that we would send a patient to this or that climate, but have to find out what is best in each individual case.

Watermelon Seed Removed from Left Bronchus of a Child. DR. SIDNEY YANKAUER.

The patient was a child, 3 years old, who inhaled this watermelon seed last August. It remained in the lung ever since, nine months. During this time, the child had a cough, which was not, however, continuous. At times the symptoms were very slight.

About two months ago, the parents consulted a competent pediatrist, who had an x-ray picture taken, which showed nothing. The child had so few physical signs, that he discredited the statement of the mother that the child had inhaled the watermelon seed.

When the child was brought to me two weeks ago, she had a very severe general bronchitis, with the peculiar rattling characteristic of foreign body. An x-ray picture was taken at Mount Sinai Hospital, which showed nothing at all. As soon as the bronchoscope was introduced, the child became cyanosed. When this subsided and the bronchoscope was introduced again, the foreign body was seen below the vocal cords, but before the forceps could be introduced it had disappeared. The instrument was then advanced to the bifurcation and the foreign body was seen in the left bronchus and removed without difficulty by the aid of the forceps. The recovery was uneventful, and the child was sent home after a very short stay in the hospital.

The point of especial interest is that the foreign body was in the air passage for nine months without producing anything but a bronchitis, and during all that time the seed did not disintegrate. It was removed intact after nine months.

DISCUSSION.

Dr. Cocks said that he had the pleasure of seeing Dr. Yankauer operate upon this case and it was done most skillfully. One should always be on guard in these cases, for in using the tube with an anesthetic a coughing spell is apt to ensue and the foreign body is likely to be dislodged and obstruct the glottis. He has had this experience last winter, and the child would have died had not an immediate tracheotòmy been performed. In Dr. Yankauer's case, as soon as the child was put in a better position the dyspnea promptly subsided, and the doctor was able to continue. It is well always to have a tracheotomy set ready when performing bronchoscopy upon children.

Dr. Guttman asked on what grounds the bronchoscopy was made. As far as he could make out there were no special signs demanding it, nothing but a bronchitis. What was the indication for the bronchoscopy?

Dr. Yankauer said that in the first place there was a distinct history that the child had inhaled the watermelon seed, and had had a cough since that time. That alone would have been sufficient justification. In the second place, there was a marked bronchitis with the characteristic rattling rales which are only produced by a foreign body.

As to what Dr. Cocks had said about the anesthesia which might produce a cough and dislodge the foreign body, he had seen a case not long ago where a child had inhaled a brass carpet tack, similar to the one presented before the Section a few months before. The surgeon was about to insert the bronchoscope and had started the anesthesia, but after a few whiffs of the ether the child coughed out the tack.

Intra-nasal Operation for Frontal Sinus Suppuration. P. Watson-Williams, *Jour. of Laryngol.*, May, 1914.

Unless there are symptoms of intra-cranial complications, bone necrosis, osteomyelitis, or complicated ocular conditions the intra-nasal operation is always preferable to an external one. The Ingals or Halle operation is too dangerous, in the opinion of the author, and Williams indicates his own technic. Skiagrams should be made previous to operation. Ed.

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

Special Meeting, June 25, 1914.

DR. GEORGE M. COATES, Chairman.

Two Very Interesting Cases of Foreign Bodies in the Bronchi Removed by the Bronchoscope. DR. SHURLY. (By invitation.)

A great many of our so-called foreign bodies are false alarms. They develop all the neurasthenic signs of the regular case. The first case is one in which the patient had a persistent cough of long standing, cough and expectoration being characteristic of incipient tuberculosis. It had been treated by numerous physicians, all without relief or proper diagnosis made.

The most peculiar characteristic was the smell of rubber perceptible at time of coughing. A radioscope picture located a foreign body in the right main bronchus. A history was now elicited of a tooth extracted some time previously and the breaking off of a piece of the rubber plate of a false set. Patient was admitted to hospital and etherized; bronchoscope passed and the rubber found, but before extraction could be done it was lost and could not be located again. The patient then recovered from the anesthesia and coughed it up.

A good plan, and one which must always be kept in mind, is when to stop with the bronchoscopic examination. This case illustrated that patients do not always know what is the matter, and all coughs of long standing should have an x-ray taken.

The second case was that of a pin embedded in the second bifurcation of the left bronchus of a child, and was illustrated with plates. There is great difficulty in locating a pin in the bronchus, it being sometimes impossible. Never do an external operation until the bronchoscopic examination has been most thorough.

The third case is that of a young lady, 22 years old, who had several teeth extracted under gas. The dentist, working fast in extracting teeth while the patient was under nitrous oxid dropped a tooth off of the forceps and it was inhaled into the bronchi. The bronchoscope was passed and the tooth extracted. We frequently have to go after foreign bodies several times.

A Case of Bi-lateral Recurrent Laryngeal Paralysis. DR. ANTONIE P. VOISLAWSKY. (By invitation.)

E. W., colored, female: age, 17; single. Admitted to St. Luke's Hospital, New York City, March 7, 1914. The patient's chief complaint was difficulty in breathing. Her present illness began fifteen months ago when she was operated upon for goiter. After the wound had healed and she left the hospital she noticed difficulty in breathing, and for some time the attacks of difficulty in breathing lasted an hour or more. When talking she was obliged to stop and take a forced inspiration before continuing. Personal or past history is unimportant.

The physical examination shows a girl, fairly well nourished, who does not appear acutely or severely ill. Some difficulty in breathing and talking, inspiratory efforts labored. Articulation of words good. When asleep has a noisy respiratory stridor. Eyes, ears, mouth and neck are normal; lungs—resonance good. Inspiration prolonged and accompanied at times by an inspiratory moan. Abdomen and extremities negative. Laryngeal examination—vocal cords appear reddened, and separate slightly on inspiration, but the rest of breathing is in close apposition. There is no voluntary motion of the muscles supplied by the recurrent laryngeal. Blood, urine, blood-pressure, Wassermann and x-ray all negative. Pulse 56, respiration 44.

Three days after admission we were compelled to isolate the patient, as her crowing while asleep kept the rest of the patients awake. We resorted to intubation at bedtime; this relieved the dispnea and stopped the crowing. Electricity, both galvanic and foradic, were administered, but without effect. On March 27, she was brought to the operating room, the larynx cocainized and a Jackson pharyngoscope introduced and with a cordes punch the left vocal cord excised. For several days subsequently she was intubated and after the wound healed discharged from the hospital. The breathing was much easier, there was improvement in talking and the crowing was replaced with an ordinary snore. At the present time, there is a white band of scar tissue where the left cord excised, and, strange to say, the right cord and the band approximate.

New Test for Labyrinthine Disease. Dr. Emerson, of Boston. (By Invitation.)

The best classification of specific disease of the labyrinth with which the writer is acquainted is that given by Kerrison in his late text-book. Here the clinical manifestations of syphilis of the labyrinth are divided into four classes. First, is a congenital type, seen in its most characteristic and easily recognized form in children exhibiting other stigmata of the disease. The aural lesion is usually bilateral, though one ear may be, and usually is, more seriously impaired than the other. Examination of the ears may reveal physically normal drum membranes, or the physical signs of middle-ear suppuration may render the syphilitic character of the labyrinthine affection less easy to recognize. The deafness is of distinctly labyrinth type and usually of advanced grade. Examination of the child shows in a certain percentage of cases the characteristic notched condition of the teeth (Hutchinson's). According to Fraser, this defect occurs in 50 per cent of cases. Interstitial keratitis is a defect occasionally found, as also are destructive lesions (defects) of the soft and hard palate. With or without these defects, the child not infrequently presents a stunted, prematurely old appearance which is more or less characteristic of these little unfortunates. The above abnormalities mark the most pronounced and, therefore, conspicuous form of congenital syphilis. There are many cases, however, in which the child does not exhibit such obvious stigmata, in which case a thorough physical examination, a careful analysis of the family history, and resort to the Wassermann test may be necessary to establish a correct diagnosis. The prognosis, as far as the auditory function is concerned, is hopeless.

The second variety of syphilitic labyrinthitis is that which occasionally complicates the acquired form of the disease in adults. It develops most frequently in the late secondary or in the tertiary stage, rarely in the primary stage of the disease. It is characterized clinically by very sudden and usually very extreme deafness in one or both ears. That the vestibular apparatus is also involved in a very large percentage of cases is shewn by the frequent evidences of disturbed equilibrium, e. g., nystagmus, vertigo, static ataxia, etc. When the lesion is unilateral and completely annuls the function of the affected vestibular mechanism, the onset is necessarily characterized by all the usual phenomena of vestibular irritation or excitation. When both labyrinths are simultaneously paralyzed, the patient exhibits the type of vertigo and ataxia characteristic of vestibular paralysis. The writer has recorded the history of such a case in which the patient was absolutely deaf in both ears and both vestibular mechanisms were absolutely non-irritable by either rotation or the caloric test.

The clinical features of these cases usually leave in doubt the question as to whether the membranous labyrinth or the eighth nerve is the structure primarily attacked. Involvment of other cranial nerves and simultaneous and equal disturbances of both cochlear and vestibular functions would point to the nerve as the structure primarily attacked; while the escape of other cranial nerves plus unequal disturbances of the two branches of the eighth nerve would point rather strongly to a direct invasion of the labyrinth.

Aside from the very characteristic onset of the attack in a person whose drum membrane may show no morbid changes, there are usually other evidences of the disease in cuticular eruptions, mucous patches, etc., which, in conjunction with the history of an initial lesion, may leave no doubt as to the syphilitic origin of the labyrinthine disorder.

Though necessarily causing great anxiety, the prognosis is more favorable than any other form of syphilitic labyrinthitis.

Another clinical variety of the disease, the pathologic basis of which is not always so easily determined, is found in adults who have suffered from chronic constitutional syphilis over a period of years. The drum membranes may or may not show evidences of tympanic disease, which, if present, may represent an intercurrent and pathological independent lesion. Such a patient frequently gives a history of occasional attacks of vertigo of more or less pronounced type, or such attacks, having belonged to an earlier stage of the disease, may have ceased to annoy him. The diagnosis depends chiefly upon the labyrinthine character of the deafness, i. e., diminished bone-conduction, negative Rinné, loss of hearing for the highest musical tone, plus constitutional evidences of the disease. Very frequently the pharynx and nasal cavities show the cicatrices and perforations representing the typical lesions of an earlier stage.

Naturally the history of such a patient may be expected to furnish data of considerable diagnostic significance. To other manifestations of the disease, the Wassermann test contributes the strongest corroborative evidence.

The lesion from which it is in some cases most difficult to differentiate chronic syphilitic labyrinthitis is that form of otosclerosis which involves not only the labyrinthine capsule but also the membranous cochlea. Between these two conditions a positive differentiation is not in all cases possible. The history of a very sudden development of the deafness, coming on in the late secondary or in the tertiary stage of acquired syphilis, would go far toward establishing the syphilitic character of the labyrinthine lesion.

The treatment in these cases is the treatment of chronic syphilis. The prognosis, so far as any marked improvement of hearing is concerned, is unfavorable.

The fourth clinical type may be dealt with briefly. It is found in patients who are victims of constitutional syphilis of long standing, and whose ears exhibit the physical characteristics of a middle-ear suppuration (usually of offensive type) and the functional reactions of labyrinthine disease. The syphilitic nature of the labyrinthine lesion is usually an hypothesis not susceptible of definite proof. It is, however, an hypothesis of very practical importance, for the reason that improvement, either functional or of the concomitant suppurative lesion of the middle ear, is not likely to result from any plan of local treatment not reinforced by active measures to eradicate the constitutional disease.

Treatment: There is no manifestation of syphilis which calls more urgently for vigorous efforts to eradicate the systematic poison than syphilitic labyrinthitis. The question of treatment resolves itself into a comparison of the few drugs of known value and the best methods of administering them. The more important phases of this subject are discussed in the chapter devoted to the use of salvarsan in aural therapy.

This classification coincides with the previous experience of the writer. The use of the Wassermann, Nogouchi and provocative tests, however, have shown us that many more chronic morbid processes involving bone and nerve tissue, have syphilis as the underlying cause, than we have supposed. While in the past we have in some cases of labyrinthitis suspected that specific disease was the underlying cause, yet these cases were, for the most part, accompanied by pronounced and sudden deafness. A careful history usually elicited the fact that vertigo, nystagmus, rheumatism, or characteristic headaches—either one or all, had at some time existed. This suspicion of venereal infection was often further confirmed by physical examination.

It is to the laboratory that we are indebted for the means to determine definitely that many cases of specific labyrinthitis may develop slowly without the stormy clinical phenomena usually associated with our previous conception of involvement of the inner ear from lues and presumably vestibular irritation. It is the purpose of this short paper to submit a hearing test which the writer has found useful as a diagnostic guide to specific labyrinthitis. At the time of the study of ten cases of labyrinthitis (of which only one will be given as typical) the writer had never seen the following statements advanced as of significance in determining this specific origin.

Given a bilateral affection with marked lowering of the upper notes, a positive Rinné and normal low limits for the Dench fork, and the cause is usually syphilis. Eight cases out of ten so studied showed the Wassermann test either double or triple positive. The upper limits, as shown by the whispered voice, were reduced to 1.25, or 1.35, by the low voice. These cases would confirm in this clinical manifestation to Kerrison's third classification. He, however, depends for his diagnosis upon the diminished bone-conduction, negative Rinné, loss of hearing for the highest musical tone, plus constitutional evidences of that disease. In the writer's case the air and bone-conductions were both lowered, but their normal ration remained the same. The Rinné was positive in every case. On looking up the literature, the writer ran across a note in which Urban makes the same statement. This, with a line in Politzer quoting Rohrer to the same effect, was all the reference obtainable. Politzer lays stress, however, upon a previous history of vertigo, nystagmus, headaches, or rheumatism, which was not obtainable in these cases, the history being one of slowly progressive loss of hearing with only the hearing test to suggest a specific origin.

A typical case is the following: James M., 31 years, widower, two children, venereal disease nineteen years. Under treatment two years on two different occasions. The specific history was denied at the time, but obtained later. History of deafness with tinnitus twelve months. No history of headaches or rheumatism. On examination, the septum showed marked deviation to the right. Large posterior ends of the turbinates both inferior and middle. There was also an active epipharyngitis. The tympanic membranes were indrawn and thickened and the luster diminished. The hearing test was as follows: Right ear 1/35 V.; left ear 2/25 V. Right ear, air conduction 25", bone condition 15"; left ear air conduction, 40", bone conduction 15". Weber to the right. Right ear, D. 64; left ear D. 64.

There was sufficient cause in the nose and throat to account for the trouble in the middle ear, but here the loss was markedly in the highest musical tone. The duration was only a year; the affection bilateral; the Rinne positive and the lowest notes unchanged. A Wassermann was triple positive.

Vaccines in Nose, Throat and Sinus Infections. Dr. G. H. Sherman (by invitation).

The therapeutic application of bacterial vaccines in nose, throat and sinus infections involves the same fundamental principles which obtain in vaccine therapy as applied to localized infections in other parts of the body. It is now well known that acquired resistance to infecting organisms is the most important factor in avoiding and overcoming disease, and from our present knowledge concerning infections it is also apparent that these immunizing activities are essentially developed by the tissue actively involved in the process of infection.

When we have localized infection usually but a comparatively small portion of the body is involved. This is particularly the case in nose, throat and sinus infections. Not much tissue being involved in these cases, sufficient immunizing substances to bring about adequate constitutional resistance—thus properly backing up the involved tissue cells in their fight to overcome the infection—is slowly developed. The natural result is that in many cases these infections become chronic.

Let us consider the nasal mucous membrane one thirty-second of an inch thick. This would require thirty-two square inches to make one inch of tissue. Let us say with the submucous tissues we have a surface one-sixteenth of an inch thick, then it would require sixteen square inches to make a cubic inch of tissue. Compared to the body weight this is but a small fraction. All the rest of the body is practically inactive in the immunizing process.

In the treatment of these localized infections with bacterial vaccines we aim to call some of these inactive healthy tissues into active immuno-producers and thus build up a systematic resistance to aid the infected tissues in overcoming the infection. By injecting a sufficient number of killed organisms under the skin a much larger amount of tissue becomes actively engaged in producing antibodies than what takes place in the nasal mucous membrane. Furthermore, clinical experience shows that a more marked immunizing response is obtained from the injection of killed bacteria than from an active infection. This may be accounted for on the ground that living germs have a very deviating destructive influence on tissue cells by the digestive enzymes they produce and also by a probable toxic autolysis. When dead bacteria are injected into the body, no digestive enzymes are created that have a destructive action on surrounding tissues, nor does there occur an autolysis with production of toxic materials that would inhabit immunization. Therefore the entire cell energy can devote itself to the production of immunizing substances and consequently there results a larger measure of immunity than the progressive infection is capable of producing.

Necessarily to successfully treat infections with bacterial vaccines the same variety of organisms must be contained in the vaccines that are present in the infection. In nose, throat and sinus infections mixed infections almost invariably exist of which pneumococcus, streptococcus, staphylococcus and the micrococcus catarrhalis are the most common. Where single organism infections exist complicating infection will soon develop. For this reason a combined vaccine containing the principal infecting organisms is preferably employed.

The best results are obtained in the early acute stages. By using the vaccines early, enough immunizing resistance may be developed in time to prevent the excessive inflammatory deposits which interfere with drainage and consequently rapid recovery will take place. In advanced cases where surgical and other measures are necessary, bacterial vaccines are valuable adjunct remedies in aiding to overcome the infection and establish a permanent cure.

The slow development of a systemic resistance to acute infections o. the upper respiratory tract is often responsible for serious troubles following these so-called "colds." From these acute, localized infections pneumococci or streptococci often gain entrance to the blood current. This may lead to serious pneumonia, broncho-pneumonia, endocarditis, inflammatory rheumatism, nephritis or other localized infections.

Infecting organisms while circulating in the blood do not stimulate a material production of resisting antibodies. These antibodies are only actively produced after the infection has localized in some tissue and a localized inflammatory process has been established. For this reason it is very important to treat these acute localized infections with bacterial vaccines because by this means tissue activity for the production of antibodies is stimulated and a systemic resistance to the invading organism established while the infection is still a minor local affair. From these considerations the importance of giving bacterial vaccines in infections of the upper respiratory tract is quite obvious.

Dr. Mosher explained and gave a demonstration on numerous dry specimens of his new operator for the exenteration of the ethmoid capsule. Dr. Mosher has designed a long, sharp-peaked curette for this operation:

Technic: After the parts have been thoroughly cocainized the curette is inserted between the ethmoid capsule and septum as high up as possible and about one-half inch from the anterior insertion of the middle turbinate. The sharp peak of the curette is forced into the ethmoid capsule going through the entire thickness. All the tissue, that is the anterior portion of the middle turbinate, is removed with the curette as are also all of the ethmoid cells lying between the middle turbinate and the lateral wall of the nose. The middle turbinate acts as a guide and protects the cribriform plate of the ethmoid during the curettment. The remaining pendulous turbinate is removed last by biting-forceps; thus completing the operation.

Treatment and Prophylaxis of Peri-tonsillar Abscess. Levinger, *Muench. Med. Wchnschr.*, June 9, 1914.

Incisions for peri-tonsillar abscesses often prove insufficient and sometimes close and cause retention. If the case is seen early before the jaw becomes very rigid the author opens the abscess by dissecting the upper pole of the tonsil and removing it with its capsule. This obtains thorough drainage and prevents retention.

Ed.

Diseases of the Maxillary Sinus. G. W. Mackenzie, *Jour. of Ophth. Otol. and Laryngol.*, May, 1914, p. 199.

In maxillary sinusitis, osteomyelitis, caries, necrosis foreign body in the antrum or dentigerous cysts the diagnosis is often doubtful, since the affection may be of either endonasal or dental origin, and the rhinologist and dentist should work hand in hand.

Ed.

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to The Laryngoscope.)

PRE-TURBINAL OPERATION ON THE MAXILLARY SINUS.*

Dr. Ross Hall Skillern, Philadelphia.

In 1908, at the meeting of the American Medical Association in Chicago, Canfield described a new method of operating intra-nasally on the maxillary sinus. This was termed, "the submucous resection of the lateral nasal wall in chronic empyema of the antrum."

This method was based upon an entirely new principle, that is, making an extensive resection of the lateral wall of the nose submucously through a comparatively small incision in front of the anterior attachment of the inferior turbinate, (Figure 1). The bony structure of the inferior turbinate was then removed with a corresponding amount of the osseus wall forming the inferior nasal passage. A portion of the crista pyriformis corresponding to the inner part of the anterior antral wall was then resected, and a flap formed from the mucosa of the inferior nasal passage was turned and packed with vaseline gauze onto the antral floor; thus completing the operation, (Figures 2 and 3). By this method not only could the interior of the maxillary sinus be inspected but a large, permanent opening into the nose was created, extending practically the entire length of the inferior turbinate.

The after-treatment consisted in removing the gauze on the fourth or fifth day and touching subsequent granulation-tissue with pure nitrate of silver. Complete healing occurred in from ten days to three months. The author claimed the following advantages for his method: 1. It may be used as a substitute for the Caldwell-Luc, as it is quite as radical without having the incision through the mouth. 2. A direct view into the antrum is obtained. 3. The after-treatment is simplified and often unnecessary.

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*Read at the nineteenth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, Boston, October 20, 1914.

During the discussion which followed, a number of exceptions to the method were taken. Thus J. W. Murphy thought that removal of so much of the wall was a rather heroic procedure.

Jansen of Berlin, condemned the use of the flap, as instead of furthering the growth of the epithelium on the floor of the sinus it actually prevented it and lengthened the time of healing. Freer regarded the operation as needlessly formidable and elaborate for all but the extremely rare case in which the severity is marked.

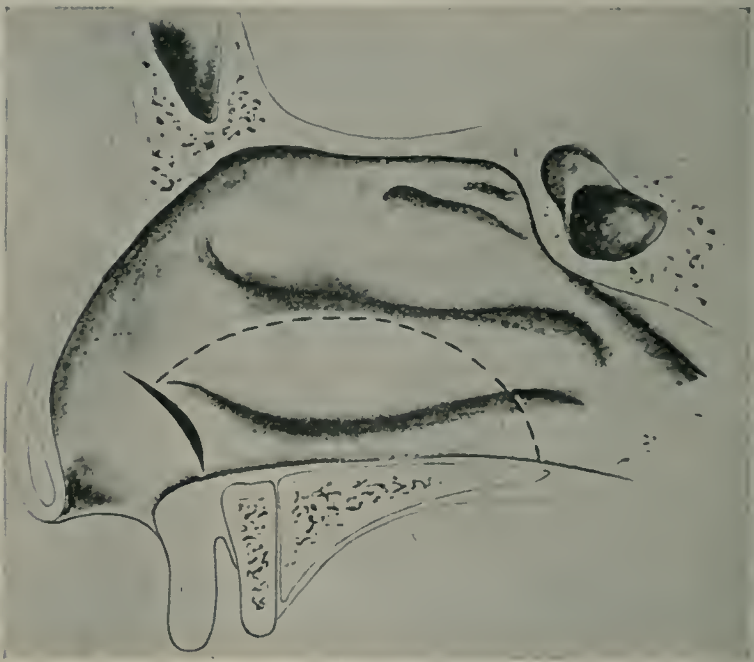

Figure 1.

Other speakers condemned the removal of the lower turbinate bone, as the subsequent shrinkage would cause widening of the nasal lumen; thus favoring atrophic rhinitis.

After careful consideration of the different phases of this method one must draw the following conclusions: 1. It is too extensive and involves the loss of tissue which is important for the nose to properly perform its physiological function, (bony structure of inferior turbinate). 2. The submucous resection is difficult, tedious and unnecessary. 3. The same results can be obtained by a similar operation of less magnitude.

Sturmann, in 1910, brought out a similar operation but without the submucous resection. His idea was to make the procedure an intra-nasal Denker operation, that is the incision being made in the nose instead of in the mouth.

The method was as follows: The inferior nasal passage and canine fossa on the affected side were painted with a 20 per cent solution of cocain. A solution of cocain adrenalin was then injected under the periosteum on both the facial and nasal side of the crista pyriformis.

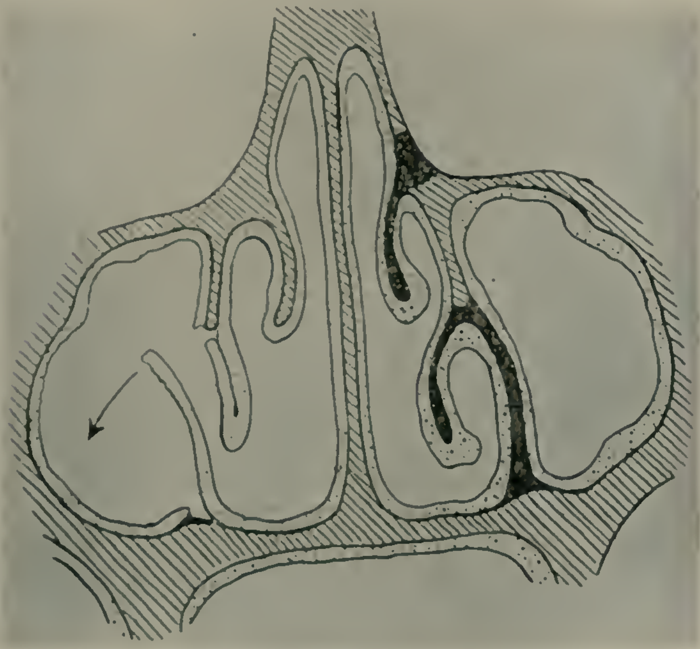

Figure 2.

After anesthesia was complete an incision was made in front of the inferior turbinate and the crista pyriformis exposed. Submucous resection was made on the nasal side, sub-periosteal resection on the facial. The crista pyriformis was then removed with bone-forceps, drills, etc., and as much of the facial and nasal bony walls as was necessary in order to directly inspect all parts of the sinus cavity including the roof. The sinus was cleansed with tampons saturated in H_2O_2, and a mucous membrane flap made from the lateral nasal wall directly behind the incision and turned backward into the sinus and along its floor. This flap was held in position with a tight tampon of iodoform gauze which was allowed to remain five days. Tampons were then changed every two days for two weeks, then omitted. Complete healing occurred in from four to seven weeks.

These operations, while presenting a great advancement in surgical technic nevertheless left something to be desired, the first (Canfield's) being too difficult and extensive, the second (Sturmann's) being over-radical by removing too much of the bony structure as well as several minor defects (retention of flap, etc.). This form of operation, however, always appealed strongly to me, and during the application of these methods the following technic

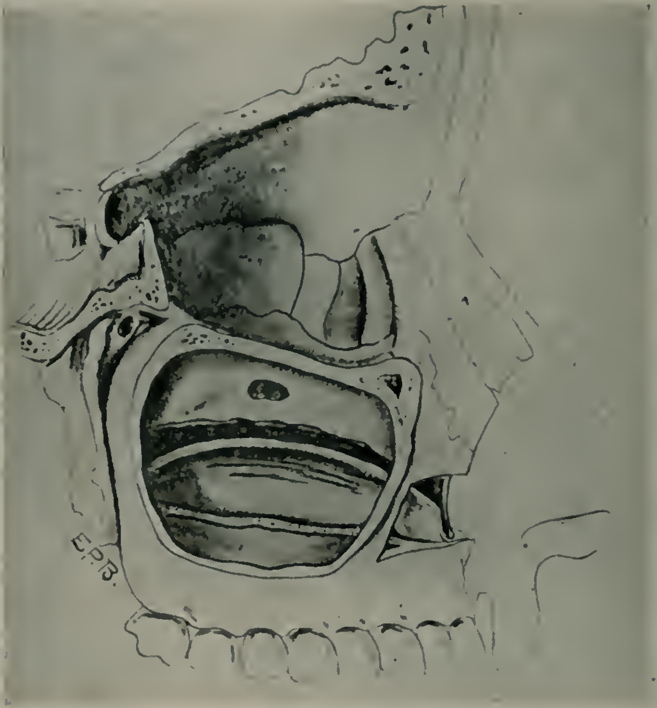

Figure 3.

seemed to take its place through a series of gradual evolutions until it has now become in our department the standard intra-nasal operation on the maxillary sinus, whenever an intra-nasal procedure is indicated. It has always been done under local anesthesia, although general may just as readily be employed.

1. The nasal cavities on both sides are cleansed by douches of warm normal saline solution.

2. The entrance to the nose, including that portion immediately in front of the anterior attachment of the inferior turbinate both above and below, is anesthetized by painting with a solution of

cocain, 20 per cent, to which 1-5 its volume of adrenalin chlorid has been added.

3. When the anesthetization is complete a solution containing novocain 1 per cent, adrenalin chlorid 1-10,000, peptone pure 10 per cent, normal salt solution 89 per cent is injected beneath the mucosa on the nasal side of the pyriform aperture and sub-periosteally on the facial side of the same structure, so that all that region around the anterior attachment of the inferior turbinate as well as the inner portion of the canine fossa wall will be desensitized. It will not be necessary to use much over 5-6 cc., (80-100 gtts.). (Figure 4.)

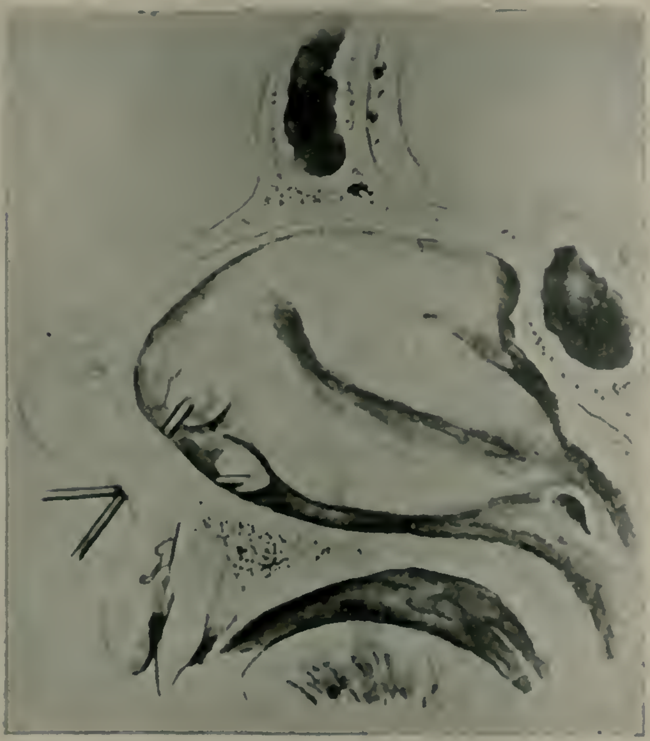

Figure 4.

4. After waiting about ten minutes a perpendicular incision is made slightly in front and above the anterior end of the inferior turbinate extending well into the floor of the nose. This incision should sever all tissues down to the bone. A second incision is made directly back of this, meeting the first one above and below so as to excise a spindle-shaped piece of mucous membrane, (Figure 5).

5. After controlling hemorrhage with adrenalin tampons, a small elevator is used to raise the periosteum from the crista pyriformis both externally toward the canine fossa and internally toward the inferior turbinate until a sufficient portion of the bone is exposed, (Figure 6).

6. The antrum is now attacked with a chisel having a concave surface, by applying it to the crista pyriformis first above, then below, removing the loosened bone with a pair of strong forceps. While the antrum may be opened by continuing this method it is better to substitute an electric trephine, as a smooth, round opening is thus obtained and insures against spicules of bone being driven into the sinus.

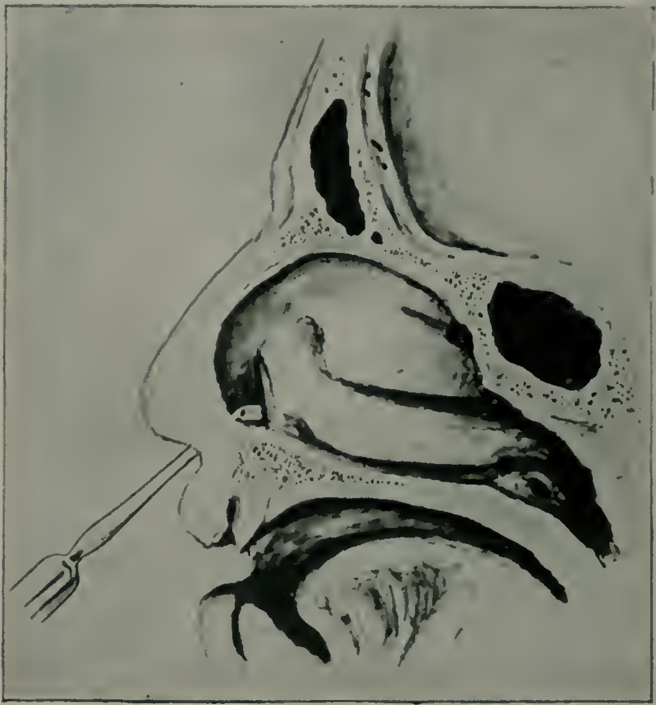

Figure 5.

7. Enlarge the opening to any desired size by means of the ordinary curved, frontal sinus rasps.

8. Flush out the sinus and after drying pack a thin strip of gauze saturated in the cocain adrenalin solution and allow it to remain five minutes. This not only anesthetizes the mucosa, but also by its hemostatic action clears the cavity of blood and permits a much more satisfactory inspection of the interior, (Figure 7).

9. Introduce an ordinary hard rubber ear speculum into the opening and thoroughly inspect the antrum for polypoid degenerated mucosa, areas of granulation tissue, necrotic spaces, etc. This procedure is readily accomplished if sufficient bone has been removed. The naso-pharyngoscope is used for inspection of the roof, lacrimal region and ostium.

10. Introduce a curette and remove all portions of diseased and degenerated mucosa, not overlooking the floor, posterior-inferior and antero-superior angles; the latter can only be reached by a right angle curette.

11. Again inspect the interior of the sinus, using cotton or gauze pledgets dipped in pure adrenalin chlorid when necessary for cleansing purposes. If all polypoid tissue seems to have been removed and the cavity clean, again irrigate and after allowing the fluid to run out, pack loosely with iodoform tape.

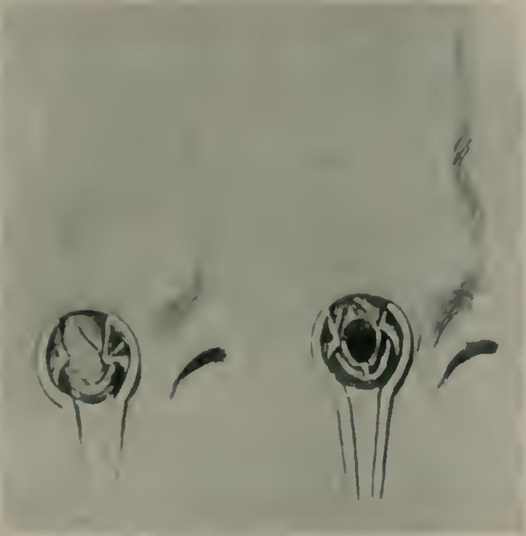

Figure 6. Figure 7.

After-treatment: The gauze is removed in forty-eight to seventy-two hours, depending upon the amount of secretion. If it remain moderately dry it can be permitted to remain even as long as one week. After its removal the cavity should be cleansed by irrigation and lightly repacked with iodoform gauze. The treatments are continued every second day for ten days to two weeks when the packing can be permanently discontinued. It is remarkable how quickly the discharge lessens after the packing is abandoned.

The treatments (irrigation and insufflation) are continued at increasing intervals for about four weeks, when in ordinary cases the patient is discharged cured. Certain cases, however, in which the permanent pathological changes in the mucosa had necessitated the removal of large areas of the lining-membrane and in which one of the forms of the external radical operations was indicated, require longer and more energetic after-treatment to promote granulation and cicatrization of the already enfeebled tissues. In these cases the discharge continues with little change after the packing has been discontinued. After thorough cleansing and drying one ounce of a 25 per cent solution of nitrate of silver is slowly injected and allowed to remain five minutes, the patient bending the head toward the shoulder of the affected side. This is continued every second day, the silver solution being used in increasing strength, (to 75 per cent), if the weaker solutions do not appear to be sufficiently stimulating. It is surprising how little discomfort these injections cause, practically no more than the like quantity of sterile water.

Precise information regarding the healing and general condition of the sinus interior can always be obtained by means of the nasopharyngoscope and I know of no condition in which the use of this little instrument gives more satisfaction than after this operation. Small areas, such as necrotic spots and suppurating foci, which refuse to heal are easily located and directly treated with pure silver nitrate. Then re-inspected to ascertain whether all parts have been touched. In this manner final and definite healing is brought about.

During the after-treatment it is always necessary to keep the artificial opening of the sinus in mind, as it shows a marked tendency to close with astonishing rapidity. This can be prevented by occasionally curetting the edges and applying a caustic. While the gauze packing is in place this will not occur, and indeed, this is one of the reasons for the several re-packings. After healing has been established this opening will gradually close until that side of the nose is to all intents and purposes quite as normal in appearance as the opposite side.

The advantages over other intra-nasal procedures are: 1. The sinus can always be inspected either directly or through the nasopharyngoscope and the progress of healing noted. 2. The drainage is at the lowest and most accessible point reached through the nose. 3. Local applications directly under vision can be made to diseased areas which have proved resisting to treatment. 4. The inferior turbinate is not only preserved in its entity but remains uninjured. 5. The operation is practically painless if the anesthetization is properly carried out. 6. The period of healing is considerably shortened and the number of after-treatments greatly decreased.

2032 Chestnut Street.

EXTRACTS AND THOUGHTS FROM A SINUS CLASSIC.

Dr. J. J. Hurley, Boston.

Ten years' attendance at medical meetings where the nasal sinuses were under discussion have emphasized for the writer the fact that there are truly "many men of many minds." Further, it is not at all uncommon to find a man who advocates one thing at a gathering this year, and takes an entirely different stand a year hence.

This diversity of opinion cannot make for good. Truth is one. Given two contradictory statements, it is possible to say that they are both wrong, or, that one is right and the other wrong. But under no conceivable circumstances can they both be right. Opinion is a personal privilege, the inalienable right of everyone. Only absolutism would seek to abolish it. But opinion to be of value must be in consonance with fact. The moment it conflicts with fact it becomes fallacy.

The variety of opinion filling the records of national and local societies, as well as the current American literature, on matters pertaining to the nasal sinuses, furnishes the writer the opportunity to recall to the attention of the medical profession a sinus school which is undoubtedly one in opinion, and which its disciples, to the number of some four thousand scattered to all parts of the globe, believe to be one in fact. From this point on, for the sake of simplicity, the writer will use the editorial "we" as representing this school, freely acknowledging his inability to do more than give a most superficial survey of thirty years' labor.

In the year 1887, to be exact, there was founded in Vienna, a course on the anatomy of the nasal sinuses by Docent Marcus Hajek. This was gradually extended to include the pathology and treatment of diseased conditions. These courses became so famous that as time went on there came a demand for their production in book form. In answer to this demand, Hajek produced his classic under the title "Pathologie und Therapie der entzündlichen Erkrankungen der Nebenhöhlen der Nase," placing the nasal sinuses for the first time on a solid, anatomical, pathological and clinical foundation.

In all this time he has not had to retrench on one single basic principle then laid down. We challenge criticism of this statement. His book is universally accepted on the continent of Europe as a classic.

Can the same be said of America? We are afraid not. We feel that many rhinologists know the book by name, but have not drunk deeper of the Pierian Spring. And right here we feel lies the real cause for the diverse opinion noted in our opening.

Far be it from us to stifle personal research or originality, but we strongly advise the man who feels that he has discovered something new in relation to the nasal sinuses, to read Hajek's book with its contained bibliographical references, giving opinions from all the leading sinus men of the world, and if he does not find his own idea approved or rejected, then he may feel that he has indeed unearthed something.

In this article we make no attempt to cover the whole ground; we confine ourselves entirely to the region which we believe not to be thoroughly understood by a considerable portion of active rhinologists. If we succeed in interesting these latter, we feel sure they will follow up their interest by acquainting themselves with the whole of Hajek's work.

We present this paper in three divisions: 1. The anatomy of the lateral nasal wall. 2. The development of the ethmoid labyrinth. 3. The significance and diagnosis of pus in the middle meatus.

THE ANATOMY OF THE LATERAL NASAL WALL: The foundation of the lateral nasal wall is laid upon the inner surface of the superior maxilla. In the skeleton the circumference of the large opening in the superior maxilla, known as the hiatus maxillaris, furnishes the articulation to a great extent for those bones which go to make up the wall. We will be more easily brought to an understanding of the apparently complicated structure of this wall if we answer the following question: In what manner is the large opening in a skeletonized superior maxilla closed by the addition of other bones, so that in life only a small opening, the ostium maxillare, is the point of communication between antrum and nasal passage?

The superior maxilla (os maxillare)—its inner surface: The body of the superior maxilla, on its inner surface, presents a large opening which leads into the antrum of Highmore. The circumference of this opening is made up of certain nasal surfaces. Anterior from the body of the superior maxilla and extending upward is the processus nasalis or frontalis. Between this process and the nasal surface of the superior maxilla lies a deep groove, the sulcus naso-lacrimalis, which we will see furnishes the foundation for the ductus naso-lacrimalis. The upper wall of the opening is made by the processus orbitalis of the superior maxilla, the lower by the processus alveolaris, and horizontally and posteriorly it is formed by the processus palatinus. These processes, then, complete the circumference.

On the inner surface of the superior maxilla run two horizontal ridges: an upper (inconstant), the crista ethmoidalis, the lower, the crista turbinalis, for articulation with the inferior turbinate.

As we have set ourselves the task of answering a certain question with a view to understanding the *ensemble* of the lateral nasal wall, we shall not go into a detailed description of the superior maxilla, as this can readily be found in Hajek's book under a special chapter.

The palate bone (os palatinum) consists of two parts: 1. The horizontal plate, which articulates with the processus palatinus of the superior maxilla, and (2) the perpendicular plate which articulates with the inner surface of the superior maxilla, resting upon the posterior rim of the hiatus maxillare, and overlapping it considerably. The inner surface of this perpendicular plate also has two ridges: the upper for articulation with the middle turbinate, the lower for the inferior turbinate. This perpendicular plate extends upward into two processes: the anterior or orbital, and the posterior or sphenoidal. A small opening between these two processes, known as the incisura spheno-orbitalis, becomes, by articulation of the sphenoidal bone, the foramen spheno-palatinum. This foramen leads into the fossa pterygo-maxillaris, and through it run the posterior nasal vessels and nerves. We already see how the palate bone begins to close the hole.

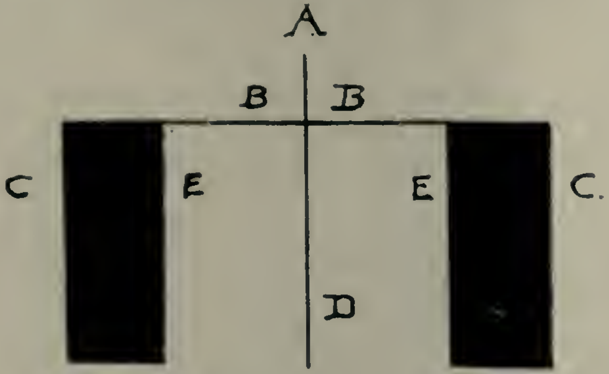

Figure 1 represents the ethmoid bone before resorption. A. Crista Galli. B. Lamina cribriformis. C. Lateral masses of the ethmoid. D. Lamina perpendicularis ethmoidalis. E. Nasal cavities.

The inferior turbinate (os turbinale): a lightly rolled bone fastened to the superior maxilla and the palate bone by its upper edge, its lower edge being free in the nasal passage. The anterior crescentic border articulates with the crista turbinalis of the frontal process of the superior maxilla, while the posterior does likewise with the corresponding crista on the palate bone. The upper edge of the inferior turbinate has a number of processes of which the largest, the processus maxillare, situated about its middle, bends outward and downward, articulating with the lower rim of the hiatus maxillare, helping to close it inferiorly. Its other two processes reach upward. The anterior, processus lacrimalis, a thin, four-cornered bone, bridges over the lower part of the sulcus naso-lacrimalis, and converts this sulcus into the canalis naso-lacrimalis, explaining why this canal empties into the inferior meatus. The canal is completed by the imposition of the lacrimal bone (os lacrimale). Less constant is a posterior process, the processus ethmoidalis reaching to the ethmoid bone. We have now partially closed the hole with the palate and inferior turbinate bone. The rest of it is closed with parts of the ethmoid bone, but before we indicate how, it seems better to first consider the ethmoid bone *in toto*.

The ethmoid bone (*os ethmoidale*): To better understand the structure of this complicated bone, imagine the following: A horizontal sieve-like bone through which the branches of the olfactory nerve come from the anterior fossa of the brain to the nose. This is the lamina cribrosa. Directly in the middle of this horizontal plate is a vertical plate reaching into the anterior fossa, where it is known as the crista galli, reaching below into the nose, where it is the lamina perpendicularis of the ethmoid. From the original horizontal plate imagine a capsule of bone hanging on either side of the perpendicular plate, and we have a fair schematic skeleton of the ethmoid bone.

To definitely fix the position of the ethmoid bone in relation to the nose, draw an imaginary horizontal line from side to side, so that it will touch the inferior border of both middle turbinates. Everything above this line in the nasal cavity belongs to the ethmoid.

The walls of the ethmoid capsule are: (1) The lamina papyracea, a thin, even plate of bone which borders externally on the orbital cavity, above on the pars orbitalis of the frontal bone, and below on and overlapping the orbital process of the superior maxilla.

(2) The median or turbinal wall, and its inner boundary, consists of folds which are nothing else than the turbinate bones. The

lower and larger being the concha ethmoidalis inferior (middle turbinate), and the concha ethmoidalis superior (superior turbinate). In certain cases we have a third—the concha ethmoidalis suprema. Zuckerkandl has seen a fourth. If we look at the skull in sagittal section, we see that from bottom to top each fold or turbinate is shorter, so that in an anterior frontal section we would only have the lower one showing. Between each turbinate and corresponding to it in length is a groove, the fissurae ethmoidalis or meati. Between the median wall and the lamina papyracea lies a space, divided by many septa, known as the ethmoid labyrinth. This we leave for later consideration.

(3) The floor of the ethmoid capsule is made up of a plate of bone convexing downward, and reaching into the middle meatus, known as the bulla ethmoidalis. This bulla is the lowest cell-wall of ethmoid capsule, and at the same time is the roof and highest lateral part of the middle meatus.

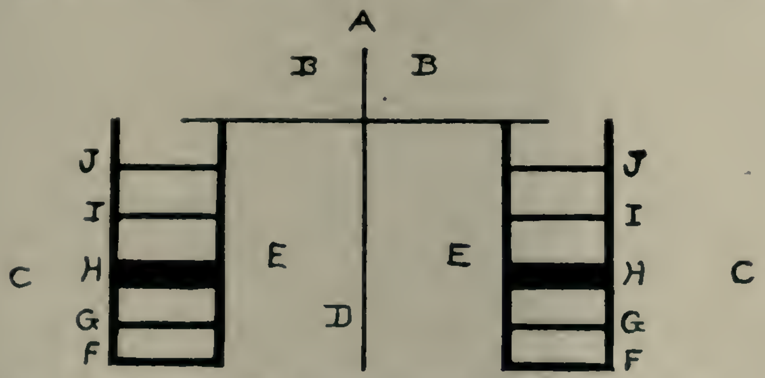

Figure 2 represents the ethmoid capsule undergoing resorption. A. Crista Galli. B. Lamina cribriformis. C. Lateral masses. D. Lamina perpendicularis ethmoidalis. E. Nasal cavities. F. First lamella or stage. G. Second. H. Third. I. Fourth. J. Fifth. Notice the partially opened capsule above, which is closed in by the foveolae ethmoidales.

(4) The roof of ethmoid capsule in its median portion is made up of the lamina cribrosa, and in its lateral part by the pars orbitalis of the frontal bone. This happens in the following way: while it is true that in a frontal anterior section, the ethmoid bone appears to be entirely closed in, this closure is only because of its articulation with other bones. A disarticulated ethmoid capsule is actually open above and behind. The cause of this is that the lateral edge of the lamina cribrosa does not reach out far enough to meet the upper edge of the lamina papyracea. This results in a number of open ethmoid cells presenting upward. Let us call them

half-cells. A favorite question in examinations is, what closes the half-cells? The answer is: corresponding cells on the orbital surface of the frontal bone known as the foveolae ethmoidales. An analagous open cell on the posterior surface is often closed in by the body of the sphenoid bone.

Just one more anatomical structure is to be considered before we place the ethmoid in its niche in the lateral nasal wall, namely, the processus uncinatus. This is a small thin process arising from the anterior end of the middle turbinate at its point of articulation with the superior maxilla.

It runs from above anteriorly, backward and downward, parallel and anterior to the bulla ethmoidalis. Its posterior and free end is made up of processes whose number is variable. As a rule, however, there are three processes. One of these articulates with the processus ethmoidalis of the inferior turbinate, another with the perpendicular plate of the palate bone, a third reaches upward to the hiatus maxillare, but may not reach it. With these anatomical facts in mind let us now place the ethmoid bone in its position on the lateral nasal wall.

The lower edge of the lamina papyracea articulates with the orbital plate of the superior maxilla in such a manner that the bulla ethmoidalis slightly closes in the uppermost part of the hiatus maxillare.

The middle turbinate articulates with two bones: anteriorly with the crista ethmoidalis of the superior maxilla, making an elevation known as the agger nasi; posteriorly with the crista ethmoidalis of the perpendicular plate of palate bone.

Between the bulla ethmoidalis and the processus uncinatus remains a slit which communicates with the antrum of Highmore. On account of its shape, it is known as the hiatus semilunaris. Beside this opening there remains the small openings between the aforementioned processes of the processus uncinatus. These openings are all that remain of the large one with which we started (hiatus maxillare). They are further narrowed down by the nasal and antral mucous membranes.

As a rule what actually happens is that the hiatus semilunaris remains open only in its most posterior part—being closed anteriorly by bone bridges and membrane duplications. The same is true of the processes of the processus uncinatus. As a rule it can be said that the only communication between nose and antrum is in the posterior part of the hiatus and this is known as the ostium maxillare. But it is well to remember that the spaces between the processes of the processus uncinatus may remain open (according to Zuckerkandl one in ten cases) and then we have an extra opening known as the ostium accessorium.

It is clear from this description that in the posterior part of the middle meatus we have a place which is not solid bone, and because of this it has been called the nasal fontanelle and the pars membranacea. This, then, is our conception of the lateral nasal wall, and here we end the first division of our paper.

THE DEVELOPMENT OF THE ETHMOID LABYRINTH: In taking up this subject we wish to emphasize our belief in the absolute necessity of dissecting-room knowledge for the comprehension of this complicated structure. But we wish to be equally emphatic, that the dissecting-room should serve only as a continuation school; it is not the place to begin.

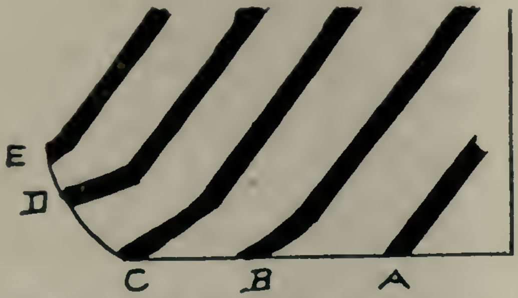

Figure 3 represents Figure 2 seen in saggital section: (a) First lamella or stage. (b) Second. (c) Third. (d) Fourth. (e) Fifth. Always open above.

The key to an understanding of the ethmoid labyrinth is found, not in the cadaver, but in the development, through resorption processes, from the lateral masses of the ethmoid bone, of a series of "Grundlamellen and interturbinalen Gängen. (Seydel, Killian, Hajek, Zuckerkandl). This resorption is not a haphazard affair—on the contrary it proceeds with almost mathematical precision. There are certain exceptions, it is true, but all sound rules have these.

In this paper, then, we shall consider the labyrinth from the standpoint of development, asking the reader to supplement his study on the cadaver and *in vivo*.

Sinus anatomists are agreed that the processes on the medial wall of the ethmoid bone, which reach into the nasal cavity and which are known as turbinates, are nothing more or less than extensions medially of lamellae which cross-sect the whole ethmoid capsule (lateral mass) extending outward to the lamina papyracea and upward to the lamina cribriformis, and respectively to the foveolae ethmoidales of the frontal bone. We will try to represent this by the following drawings, specifying that the lamellae are what remain after the ethmoid capsule has undergone resorption.

It is clear, then, that a fully developed labyrinth consists of four or five stages or lamellae. The first and lowest, incomplete, makes the processus uncinatus.

The second, complete, makes the bulla ethmoidalis and in typical cases reaches on the one hand the lamina cribrosa on the other the lamina papyracea. If the first stage is compared with the second it is evident that the former is only developed in its lower part and does not cross-sect the labyrinth as does the second.

The second stage, known as the bulla lamella, forms the boundary between the nasal part of the frontal sinus and the ethmoid labyrinth. If it tends to lie somewhat posteriorly the frontal sinus is enlarged at the expense of the labyrinth. If anteriorly, the reverse is true, namely, the frontal sinus suffers and the labyrinth is enlarged. If it lies excessively anterior it may lead to an ethmoid cell being pushed toward the frontal sinus. Such a cell has been given a name (bulla frontalis, Zuckerkandl) to distinguish it from the bulla ethmoidalis.

The third stage forms the middle turbinate and is complete through the labyrinth up and outward. Between the third and second stage lies the anterior ethmoid labyrinth, its size depending on the distance between these two stages. In typical cases all cells lying anterior to the third stage empty into the middle meatus.

The fourth and fifth stages make the superior and supreme turbinates. All cells posterior to the third stage form the posterior labyrinth and empty into the fissura olfacturia. The spaces between the stages or lamellae are known as interturbinate "Gänge" (passages).

This short sketch explains the general architecture of the labyrinth. Anomalies are caused by any particular lamella being out of position, either forward or backward, and also by defects in the lamellae.

The ethmoid cells: These are caused by the development in the interturbinal passages, of septa, complete or incomplete, making sometimes real cells and at others only partial ones.

It can be readily seen that the hiatus semilunaris represents the interturbinal passage between the first and second stages, and is not fully developed. But in common with the other passages, it tries to develop cells by septal formation, and these latter are apt to be incomplete and when present are known as infundibular cells. Of them, more later.

The number of cells presents the greatest variety. We are not speaking of diseased labyrinths when we say that the anterior and posterior labyrinth can consist of one large cell. Because by anomaly this can be an anatomical fact. On the other hand, the number of cells may be limited only by space. The whole question depends on the position of the lamellae and in the development of septa. In one case the anterior cells predominate, in another the posterior.

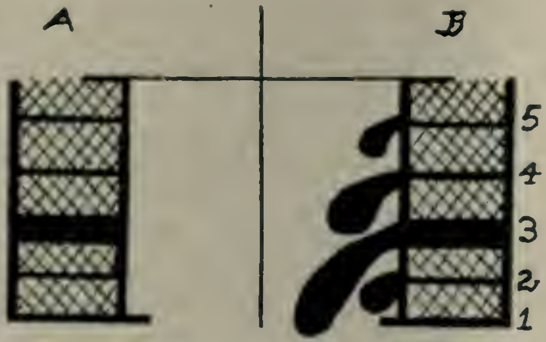

Figure 4 represents (a) the lamellae and interturbinal bony septa which spring up to make the ethmoid cells. (b) The development of the lateral mass completed, showing how, by extension nasally, the various lamellae become. 1. The processus uncinatus. 2. The bulla ethmoidalis. 3. The middle turbinate. 4. The superior turbinate. 5. The supreme turbinate.

For all clinical purposes we speak of the ethmoid cells of the middle meatus as anterior, and the cells of the fissura olfacturia as the posterior cells. This serves all practical purposes. But it must not be forgotten that an anterior ethmoid cell can extend backward to the body of the sphenoid, and that a posterior is sometimes found as far forward as the anterior insertion of the middle turbinate or in it.

THE TOPOGRAPHY OF THE ETHMOID LABYRINTH: It is important that this be understood, because our effectiveness in the diagnosis and therapeutic interference of ethmoid labyrinthitis stands in direct proportion to our knowledge of anatomical conditions.

Let us first take up the anterior ethmoid labyrinth. It borders outward on the lamina papyracea, and upward on the lamina cribrosa, and respectively on the foveolae ethmoidales of the frontal bone. These boundaries are easily understood. The nasal limits are not so easy. We will consider them under four headings. 1. The anterior boundary towards the frontal sinus. 2. The relation between the anterior ethmoid and the hiatus semilunaris. 3. The extension of the anterior ethmoid cells into the middle turbinate. 4. The infundibular cells.

1 The anterior boundary of the ethmoid toward the frontal sinus: We have already stated that the second or bulla lamella forms the boundary between the frontal sinus and the anterior ethmoid. Therefore, anterior to this lamella lies the hiatus semilunaris and the ductus naso-frontalis. Posterior to it lies the ethmoid labyrinth. This is the rule. Now comes the exception, represented by anomalies or defects in the bulla lamella.

The lamella can be placed out of position either backward or forward. In the first case the hiatus semilunaris (infundibulum) is no longer a slit-shaped passage, but becomes a sort of vestibule to the frontal sinus, and bears a striking similarity to an ethmoid cell.

Earlier in this paper we have shown what happens when the lamella lies forward and very far forward. Namely, the frontal sinus is diminished in size before the advance march of the labyrinth, and there may be formed the cell known as the bulla frontalis. We consider this varied position of the bulla lamella as an anomaly.

We have shown that normally a bulla lamella cross-sects the entire labyrinth, externally to the lamina papyracea, above to the lamina cribrosa. But there may be a defect in this defense, partial or complete. Depending on its extent this defect may put any or all of the cells lying between the second or bulla lamella, and the third or middle turbinate lamella, in direct communication with the infundibulum, making in some cases a single large cell of the whole anterior labyrinth.

2. The relation of the anterior labyrinth to the ductus naso-frontalis: In typical cases the medial wall of the hiatus semilunaris is covered by, and only by, the solid anterior end of the middle turbinate. But in many cases the anterior labyrinth pushes itself ahead of the bulla lamella and forms the medial wall of the hiatus. In this manner it can come to pass, that the ductus naso-frontalis lies in the middle of anterior ethmoid cells. Also, these cells in combination with the frontal process of the superior maxilla and the lacrimal bone can form a cell known as the cellula lacrimalis, which lies on the orbital side and directly posterior to the sulcus naso-lacrimalis.

The cells covering the medial wall of the hiatus are generally complete but they may be defective, once more causing a single large opening into the hiatus.

3. *Extension of the anterior ethmoid cells into the middle turbinate:* In certain cases the labyrinth hardly reaches the anterior end of the middle turbinate, but in others it attacks it so severely, that many ethmoid cells are found in its substance, so that the middle turbinate instead of being a solid bone takes on the character of a puff ball.

4. *The infundibular cells:* We have already shown that the hiatus semilunaris represents an interturbinal passage and as such is liable to cell formation. There are a number of possibilities:

(a) The infundibulum instead of following the usual rule of leading into the frontal sinus can end in an ethmoid cell. In this case, the frontal sinus has a separate opening. This blind cell can remain small or, being larger, pushes forward on the frontal sinus, making a cell called the bulla frontalis.

(b) The infundibulum can have two openings: one leading into the frontal sinus, the other into an ethmoid cell, far forward, which may have varied positions in relation to the frontal sinus. It may be medial, lateral or behind the frontal sinus.

(c) The formation of the agger nasi cell. The cells arising from the infundibulum may develop in such a manner as to actually excavate the processus uncinatus and the agger nasi, the elevation caused by the anterior attachment of the middle turbinate to the crista ethmoidalis of the frontal process of the superior maxilla (Aushöhlung der Agger nasi). In this case the processus uncinatus and agger nasi can bulge prominently into the nasal cavity.
(d) Besides these, there may be a few ethmoid cells opening into any part of the infundibulum.

One last possibility: it has been shown that the foveolae ethmoidales close the labyrinth above. Exceptionally they may not, as the lamina cribrosa may extend laterally far enough to do this. In this case there are no foveolae on the under-surface of the frontal bone, but they are developed below and behind the frontal sinus, and in these cases we may have an actual extension of the ethmoid labyrinth into the frontal sinus.

THE OSTIA OF THE ANTERIOR LABYRINTH: In general, every cell empties into the nasal passage by an ostium of its own or through a cell which is in possession of such. The number of ostia depends upon these circumstances.

The cells can empty into the middle meatus in three places: 1. The most constant location is the angle between the bulla ethmoidalis and the middle turbinate, where there may be one or several openings. 2. Infundibular cells may open backward and laterally into the anterior part of the infundibulum—a fact to be remembered when probing the frontal sinus. 3. The cells can empty into the posterior part of the infundibulum just above the ostium maxillare, explaining under certain circumstances how pus can flow from ethmoid to antrum, making the latter a reservoir.

THE POSTERIOR ETHMOID LABYRINTH: For practical purposes all cells lying behind the lamella of the middle turbinate are posterior ethmoid cells and empty into the fissura olfacturia. This posterior labyrinth is developed from the remaining lamellae, which are subject to considerable variety.

For the rhinologist the posterior ethmoid cell is the important thing. This cell is bounded in front by the lamella of the middle turbinate and behind by the posterior ethmoid wall, which is nothing but the lamella of the supreme turbinate (Zuckerkandl).

This last lamella does not always close the labyrinth. If it lies somewhat anterior, it may divide the posterior ethmoid cell into two halves, of which the posterior is open, in a disarticulated ethmoid bone. This open cell is closed by the anterior wall of the sphenoid bone, and hence is known as the sphenoidal ethmoid cell.

If, now, the lamella of the superior turbinate instead of being vertical, lies horizontal, the cell is again divided into an upper and lower chamber. This upper chamber or cell can push back into the sphenoid body making two cavities in it, of which the lower is the sphenoidal sinus, the upper an ethmoid cell. In this case it is actually an ethmoid cell, whose roof is formed by the wing of the sphenoid, and not the sphenoid sinus itself, which lies next to the brain. The posterior ostia are usually three in number and empty into the fissura olfacturia. A secretion in them would therefore pour anteriorly over the middle turbinate or posteriorly into the choanae.

Here we finish our history of the development of the ethmoid labyrinth. It only remains for us to point out the lesson we learn from it.

Out of the mass of detail we draw this conclusion: The ethmoid labyrinth is made up of two distinct entities—the anterior labyrinth and the posterior labyrinth, each in turn made up of component parts called cells. We should expect to find that any pathological or clinical conditions would have to follow these facts.

From experience we know that they do. Hence we insist on this previous knowledge for intelligent work.

In closing this chapter, we give two examples of what we mean—

1. We have shown that under certain conditions, the infundibular cells can entirely cover the ductus naso-frontalis. It is self-evident therefore, that to uncover the latter, these cells must first be removed.

That we have been doing just this for a quarter of a century we would like to show. On page 219 of our book, we give a picture of our instrumentarium, which, among other things, shows the famous Hajek hook, especially designed for this purpose, and the somewhat older bowl curette. Again, on page 251, in the chapter dealing with operations of the ethmoid, we find the following: "Bedenkt man ferner, das der Ductus naso-frontalis auch medialwaerts zuweilen von Siebbeinzellen gedeckt ist, so ist es von vornherein klar, dass bei Freilegung des Ductus naso-frontalis diese mediale Wand aus dem Wege geraeumt werden muss. Man kann nach Entferuung des vorderen Muschelendes mit der Schlinge mittels eines Hakens mehrere Millimeter nach auftwaerts an der medialen Wand des Ductus naso-frontalis liegende enternde Infundibular-zellen (bulla frontalis, agger nasi, etc.) eroeffnen." Now this surgical interference is not the product of accident or revelation, but proceeds directly from our knowledge of anatomical conditions.

2. In like manner we know that the infundibulum is covered medially by the middle turbinate. We know also that there are many openings into the infundibulum, all or one of which may become diseased. For instance, an agger nasi cell, originating from the ethmoid, but for all pathological and clinical purposes a distinct entity, placed anterior to the hiatus and draining backward into it, may be diseased, and the rest of the ethmoid be perfectly healthy. But we can know nothing of the infundibulum while the middle turbinate is in position. What right, then, have we to proceed to surgical interference under these conditions? The spectator in the auditorium can have no idea of the stage-settings until the curtain parts, and likewise the rhinologist must get rid of his curtain, the turbinate, in the infundibular theater.

Finally, we care not how radical we are, provided we can give a reason for it, but we insist that the labyrinth is a whole, divided into halves, each subdivided into parts. We know that the pathology follows these anatomical lines. Treatment, to be rational, must be in sequence. To know that there is pus in the nose is important, but the knowledge is valueless unless we also know its source. If we tell the fire department that there is a fire on First street, and this street happens to be ten miles long, we have given it little information of value. To better understand the labyrinth and its treatment let us draw a simile. The labyrinth can be likened to a two-family house, each half containing a certain number of rooms, situated in a thickly settled district. Suppuration can be represented by fire.

Case 1: Fire in this house. Apparatus arrives. The first look tells the chief that this building is, or is about to be, a total loss. To him, it ceases to be a dwelling, and becomes a menace to surrounding property. His duty is to the abutters. Treatment must be radical. This will consist in preventing the spread of the flames, controlling them, dynamiting the walls, and eventually razing the building to the ground. This is a destructive operation justified by the end.

Case 2: Similar house. Another fire. Apparatus arriving, chief sees smoke emitting, presupposing fire, but otherwise no external clue to its location. Chief prying off the door (middle turbinate) enters, investigating. Discovers small blaze on the ground floor, first room to the left (bulla). Here the problem is different. His duty is not the public, but to the individual property owner to whom he owes it to extinguish the blaze, with the minimum amount of damage to the rest of the building. He must confine his efforts as far as possible to that one room. He has no legal or moral right to invade the rest of the house, indiscriminately swinging his axe. This is a conservative operation, and the only one justifiable in this case.

This simile finds its analogy in diseases of the labyrinth. It is well known that an ethmoid can be diseased *in toto,* but also that disease can be confined to a single cell, or a number of cells. As a matter of fact, the majority of cases are only partially affected. To claim that these latter should be entirely exenterated would be as unsurgical and illogical, as it would be for a dentist to extract all the teeth, because a few were carious. Yet we see men, who do not believe they have done any ethmoid unless the sides and roof are as smooth as a billiard ball. The whole question of good treatment turns on good diagnosis. In one case radical surgery will be required, in another conservative surgery. First, last, and always, it should be rational surgery.

THE SIGNIFICANCE AND DIAGNOSIS OF PUS IN THE MIDDLE MEATUS: After all that has been written concerning the nasal sinuses, one might safely assume that this question was long since settled. No assumption could be farther from the truth. The best evidence of this is, that we differ radically from a considerable portion of rhinologists whose names have become identified with sinus work in America. So differing, nothing can be more certain than that we cannot both be right. Our purpose in this paper is to explain our own position, not so much with the idea of defending it, as to use it to point out our objections to others. Our ideas are set forth fully in Hajek's book. We shall only use what seem necessary to us.

We make the broad, general statement to cover all nasal sinus work, that the only certain means of making a diagnosis of suppurating sinusitis is the finding of pus, or evidence of pus (polyp, granulation, hypertrophy, etc.). The x-ray is an excellent means of determining the probable dimensions and anatomic characteristics of the sinuses.

With the finding of pus in the nose, the x-ray and transilluminating apparatus may give excellent corroborative evidence. With a negative finding in the nose, they mean nothing. Alone and unaided, they are worse than useless, as they can and do lead to error.

We have frequently delivered pus from sinuses pronounced negative by high x-ray authorities, and have proved cases negative, which they thought positive.

Given a case of pus in the middle meatus, we insist on following a regular routine, because only in this way can results be checked up.

We first satisfy ourselves that the pus is in the middle meatus. Our next step is to thoroughly clean the meatus, because it must not be forgotten that the pus may be a manifestation of local infection, which has no connection with the sinuses. Having satisfied ourselves on this point, and coming to the conclusion that we are dealing with a sinusitis, we reason that only sinuses of the first series (antrum, frontal and ethmoid) empty into the middle meatus.

Our problem then becomes one of elimination or inclusion. We proceed by first attacking the antrum, for the two following reasons: 1. Because experience teaches that the antrum is more frequently diseased than any sinus of the first series. 2. Because when all other methods of diagnosis fail or are open to question, the antrum puncture always will establish the presence of pus in an antrum.

Consequently, having previously cleaned the meatus, we puncture and wash out the antrum, feeling sure that any pus delivered must come from there and nowhere else. It is inconceivable that pus could flow into the meatus from other sinuses in the short time elapsing between cleansing and puncture.

This is our way. But this immediately brings us into conflict with those who persist in looking at the antrum as a reservoir, and who say: "the antrum is a reservoir for the other sinuses. Clean up your ethmoid and frontal, and your antrum will take care of itself." This we believe to be absolute fallacy, because we not only insist that the antrum is the most frequently diseased of the sinuses of the first series, but we also say that it is diseased *in se*. To avoid misunderstanding we will here say that Hajek was the first to point out that under certain circumstances the antrum could act as a reservoir to the other sinuses. But the exception must not be made the rule.

Let us take up the reservoir-theory of these rhinologists. We believe that the mere pronouncement of this theory spells its defeat, because, believing as they do, these men do not systematically wash out the antrum and hence are left without defense. We do, and feel we have the facts with us. We do not think there is necessity to argue further on this question. But, lest perchance it be argued that this is only a negative body blow, we will try to make it a little more positive.

When we ask these rhinologists for their reasons for believing as they do, they invariably answer that "it is all a question of gravity—the antrum is placed below the ethmoid and frontal, and consequently receives the pus from above."

This is a specious argument until one stops to consider that two very important factors, namely, the anatomy and the pathology, do not lend it their support.

Taking up the anatomy of the ostia we find that the ductus nasofrontalis empties into the anterior part of the infundibulum, whereas the ostium maxillare is found in its most posterior part—in other words, around a corner.

Still more striking is the case of the ethmoid. Here, as a rule, and we must always consider the rule not the exception, the ostia do not empty into the infundibulum at all, but into the middle meatus between the bulla and the middle turbinate. From the anatomy of the parts we cannot see this reservoir theory.

Considering the pathology of sinusitis, in conjunction with the anatomy, we believe the theory gets a complete "knockout." We believe all are agreed that the great majority of sinus cases are caused by germ infection with subsequent inflammation. Under these circumstances, what right have we to assume, that the invading hosts will pass by such a rich prize as the antrum, situated as it is in the outer circle of defenses, to run uphill to tackle the more fortified secondary line—the ethmoid and frontal? But let us assume that they do, and also that the ostia are so placed that they are in a straight line, one above the other, thus favoring drainage into the lowest sinus.

Consider inflammation with its four cardinal symptoms: redness, heat, swelling, pain. Let us take the frontal sinus as an example, and what we say of it can be applied to the ethmoid. What causes a frontal sinusitis? Inflammation with its cardinal symptoms. But one of these is swelling. As a result, the naso-frontal duct becomes swollen. If it did not, we should have no frontal sinusitis. As a consequence, the invaders become landlocked, so to speak, and the sinus suffers from their ravages. Thus it can readily be seen, that even were the anatomy favorable to the reservoir theory, the very thing which causes a frontal sinusitis, militates against its acting as a pitcher pouring fluid below. When we add to this the fact that the inflammation which closes the frontal sinus very probably closes the ostium maxillare, we see how the antrum protests against being made a reservoir and defends itself by closing the door.

For these reasons we object to this theory. We concede that occasionally, as mentioned in the anatomy, the ostia may be so placed in relation to the ostium maxillare that the antrum can act as a reservoir, but then only when all signs of acute inflammation are absent from the lower infundibulum and a chronic sinusitis persists above.

Finally, we object to the theory because we have, not a few times, washed out of the antrum one to two ounces of pus, in cases which had had a beautiful ethmoid operation and were discharged "cured."

We have devoted this space to the antrum because our daily experience shows us that the number of men differing from us is not inconsiderable.

To return to our own position—we always wash out the antrum; thus ruling it positive or negative, and are certain of one thing i. e., that when we get through with it, it is empty. Transeat.

But the pus may also be coming from the other two sinuses. We make our next point of attack the frontal sinus, stating emphatically that it is more easy of access than the ethmoid, and therefore makes the diagnosis easier. We proceed to probe and wash out the frontal sinus, first having cleansed the middle meatus anew. As a preliminary we resect the anterior end of the middle turbinate for the following reasons: 1. No intelligent knowledge of the infundibulum can be had with it *in situ*. 2. With it out of the way the probing can be done as a routine procedure. (The fact that there may be a few exceptions, does not make us hesitate to say this.) 3. It is the first step in the surgical treatment of sinusitis, so that we lose nothing by doing it. Frequently good judgment requires that we do nothing more from a surgical standpoint. Having done this, we never have any trouble washing out a frontal sinus. Thus we rule this sinus positive or negative.

By making this statement, we expose ourselves to attack from two quarters: First, we are opposed by the man who holds the turbinates sacred, and who bobs up perennially at medical meetings with his plea to spare the turbinates, on the ground that by excising them one gets an atrophic rhinitis. To this man we answer, that even were he able to prove his point, it would make no difference to us in the face of a greater necessity. If he can prove, that a cutting operation in the nose, directly or indirectly, furnishes the etiology of atrophic rhinitis, he has solved a problem for the medical profession. Why seek farther? On the other hand, we think of a half-dozen reasons which render his position questionable. We give him the first that comes to us. We cite one of the first rules of surgical histo-pathology. "A wound in the nose caused by a cutting instrument is always healed by the regeneration of normal nasal cylindrical epithelium." But this epithelium and atrophic rhinitis are incompatibilities. Ergo.

In this same category and for similar reasons we place that rhinologist who sends his patient to the dentist to have his arch widened, hoping thereby to gain nasal breathing. At the end of nine months the dentist shows this patient that by actual rule he has gained one-sixteenth or one-eighth of an inch. To this rhinologist we say: "Get your patient's teeth fixed if he needs it. But this man comes to you for air, to-day, now—and what do you give him? A nine months' endowment policy on one-sixteenth of an inch! How does he know he is going to live long enough to collect? If he needs air, and the first glance shows you cannot gain anything on the septum, sacrifice a part of the turbinate, sacrifice everything, to gain your end. You would do a tracheotomy if a piece of meat were in his larynx, why should you not be guided by the same principle in the nose?"

We are now prepared to repel the other attack. We have stated that we proceed to probe and wash out the frontal sinus. We mean just that. Immediately there is a storm of protest from the men who say that the frontal sinus cannot be probed in more than half the cases. This, we say, is fallacy pure and simple. Where it originated we do not know, but we do know that it is widespread and will continue to grow if allowed to pass unchallenged. We know that many rhinologists disagree with us, and we think we understand this. On the other hand, we cannot recall a single sinus anatomist who does not agree with us. What, then, are the facts? In the first place, these men have tried to make a whole truth out of a half-truth.

Jurasz, who first gave birth to the idea of probing the frontal sinus, says "that unfortunately, very often, it is not successful."

Hajek immediately qualifies this by saying, that it is not possible in something over half the cases. We have always been inclined to feel that the fallacy started right here. Our friends saw this statement and got no farther. Now, of course, both Hajek and Jurasz, as well as Hansberg, Choleva, Hartmann, Herzfeld, Winkler and others who have written special articles on the probing of the frontal sinus made these statements in regard to noses in which they attempted to probe by the so-called anatomical route, that is, with everything *in situ*. Given one hundred cases, about forty-seven could be probed without previous preparation of any kind. We see, then, that even now we are only about three points behind what our friends allow as a limit of possibility. Not such a bad batting average, when one considers that this takes in every old kind of a nose! But let us keep on.

We know that the great difficulty to a proper passage of the naso-frontal ducts is the obstruction caused by the middle turbinate, and also by polyps and granulations in the anterior part of the infundibulum. A high deviation of the nasal septum can also cause trouble. Let us assume that all these difficulties have been removed, and then let us see how the case stands. On page 162 of Hajek's book we find that these things being removed, the frontal sinus can be probed, "in jeden Zweifel ausschliessenden Weise ermöglicht werden," in other words, beyond the possibility of a doubt. Literally translated this means one hundred per cent, and the statement is made with full knowledge of the apparent pitfalls offered by the infundibular cells. We do not claim one hundred per cent for the reason that we recognize, that just as there are on the face of the earth people whose hearts are on the right side of the body, so there must be others, whose infundibula are so anomalous as to fall outside the scope of any rule. The objection presented by these few is to us wholly academic, and we have already shown how we should handle them—by uncovering the naso-frontal duct. We wish to make it emphatic that infundibular cells are no contraindication to the successful probing of the sinus.

Another point is, that it is all very well to talk glibly about infundibular cells, but it must be remembered that they are the exception, not the rule, and that in the vast majority of cases the infundibulum leads directly into the frontal sinus. This is our case. Now let us consider, that when a single individual says, that something can be done, and the whole world is arrayed against him, the chances are that he is wrong. But when any considerable number of men are willing to testify that something can be done, the wise man, who is inclined to differ, "holds his horses."

A perfectly fair question is, how do you reconcile the ease in which you speak of probing the frontal sinus with the idea of the opposition? We admit that we have asked ourselves the same question many times, and have answered it by coming to the following conclusions: 1. The average man, who says it cannot be done, has taken some one's word for it. 2. For the last quarter of a century the directions for probing the sinus, both in the rule and in the exception, have been given in Hajek's book. How many of our dissenters are acquainted with them? 3. The average nasal probe and cannula made by American surgical houses bears the same relation, in size and pliability, to the hiatus semilunaris, that a bronchoscope might to the urethra. 4. These difficulties out of the way, the whole argument reminds us of the novice attempting to pass a Eustachian catheter; he bends himself, he bends the patient, but never under any circumstances does it occur to him to bend the tube! He is perfectly willing to admit that John Jones and John Smith may require different sizes in hats and shoes, but he insists that they take the same catheter whether they want to or not.

Having washed out the frontal sinus we now know that the only place pus can come from is the anterior ethmoid. This we now inspect, locating its ostia, probing them, with the idea of finding pus.

Here we finish this article, feeling that we have accomplished that which we set out to do, namely, to explain our position on its three divisions.

We do not claim to have presented anything new—on the contrary, we protest that it is all very old. We do not seek to force you, Mr. Reader, to believe us. We refer you to Hajek's book with its contained references, embracing the opinions of the best sinus men of all times. Are you ready to reject this testimony, to accept the doctrine of those, whose ideas of nasal anatomy and surgery are, at best, things of yesterday?

541 Commonwealth Avenue.

THE RELATION OF THE TONSIL TO THYROID DISEASE.*

Dr. Burt R. Shurly, Detroit.

The interest of the laryngologist in the manifestations of thyroid disease and the various disturbances of the ductless glands may be active from many lines of scientific investigation.

The literature of the subject is particularly voluminous in the fields of physiology, pathology and medical research, yet comparatively few reports have appeared from our own special realm of study.

It is true that in most communities the internist, the surgeon, the neurologist, and the ophthalmologist diagnose and treat these patients without special or expert examination of the upper respiratory tract. The fault is no doubt ours, that we fail to find symptoms and lesions of sufficient interest to prove our value in the case.

It is a well-known fact that the State of Michigan, for some mysterious reason, is a geographic belt that includes an increased percentage of cases exhibiting disturbances of thyroid secretion.

The phenomena of symptomatology are so varied and extensive that the majority of specialties may classify these cases within their selected sphere, but in my experience the laryngologist is consulted frequently to explain and relieve the early neuroses and various symptoms of thyroid disturbance that are referred to the throat. The onsetting stage of atypical hypo- or hyper-thyroidism is usually overlooked or passed into that graveyard of diagnoses, neuresthenia, indigestion, "a run down condition," or catarrh.

Although our wealth of experimental research has brought out comparatively few physiologic and pathologic facts, yet many of these are sufficiently definite to establish scientific diagnosis and therapy of genuine value.

It is reasonably certain that the thyroid pours into the lymph and blood streams a secretion of the greatest importance to organs and tissues of the upper respiratory tract. It is particularly the function of the thyroid to form a secretion whose physiologic activity is dependent on an iodized protein which is proportionate approximately to its iodin content. To utilize it is not to destroy it but it is reabsorbed by the thyroid in a process of auto-activity.

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*Presented at the thirty-sixth annual meeting of the American Laryngological Association, Atlantic City, May 26, 1914.

In the state of insufficient iodin feeding the simple goiter is produced as a compensatory hypertrophy. We are familiar with the increased consumption of oxygen in thyroid or adrenal feeding and the effects upon the heat centers and metabolism. The average amount of iodin in the normal thyroid is estimated at 3 mg per gram of gland substance. It is manifestly obvious that the physiology of the thyroid and other ductless glands is profoundly affected by toxic disturbances in general and particularly by those that enter by the lymphoid ring.

It is especially our function as laryngologists to realize the direct and definite physiologic and pathologic relation of the tonsils to the thyroid and to establish a routine investigation of the effects of tonsillitis, quinsy and other infections of lymphoid tissue upon the upper respiratory tract. My attention was called to this subject by the beneficial results of a series of tonsillectomies for the relief of recurrent tonsillitis and quinsy attended by incipient typical and atypical Graves' disease. The prompt, permanent and prophylactic value of enucleation in this class of cases adds another definite indication to surgical procedure which is given no attention in the literature. As acute and chronic tonsillitis and peritonsillar abscess are recognized as important etiologic factors in incipient exophthalmic goiter, tonsillectomy may be classified then as a prophylactic measure in our new and fashionable department of preventive laryngology.

While it is the purpose of this paper to limit a discussion to the thyroid gland and its relations to the upper respiratory tract a fascinating and scientific field of research is developing in contributions to the inter-relation of the tonsils with the adrenals, pituitary body, thymus and ductless gland system in general.

The diagnostic signs of differentiation according to the degree of hyper- or hypo-thyroidism established have been definitely classified by Beebe and Rogers as follows:

HYPERTHYROIDISM: More common in young women from 18 to 30 years. *Onset* may be slow and gradual or sudden and acute. *Tachycardia,* 128-180; pounding beat felt over a wide area; often a loud systolic murmur over apex, base and along the great vessels. Irregular form, and very susceptible to the effects of exercise. Blood pressure variable, generally low, pulse soft and full, marked dyspnea on slight exertion. Marked edema of legs. *Nervous system.* Fine tremor affecting nearly all the muscles, twitching and occasionally spasms. Patients are abnormally irritable and excitable, apprehensive, mentally very active and physically restless. Muscular weakness prominent. *Eye signs.* Exophthalmos generally present, although it is not invariable. Occasionally unilateral, corresponding to the side having the enlarged thyroid lobe. Various symptoms arise in consequence of the exophthalmos. No pupillary changes. *Gland.* Enlargement varies from nothing to very large goiter. The blood vessels over the gland are generally much enlarged and pulsate markedly. Right lobe generally the larger. *Nutrition*, severely disturbed; in most cases there is a loss in weight which may progress to extreme emaciation. Appetite variable; vomiting and diarrhea frequent complications. Patients drink a great deal of water. *Skin.* Profuse perspiration, erythema, urticaria, dermographia; pigmentation, which may occasionally be so marked as to suggest Addison's disease. Hair falls out, but is not coarse and dry. Patients prefer thin clothing and cold rooms. They are more comfortable during cold weather. *Temperature* may be only slightly elevated, 99°-100°. In severe acute cases it runs often to 102°-104°. *Urinary findings.* In most cases normal in volume; glycosuria not unusual; polyuria often observed in later stages. Nitrogen proportions show a very much decreased creatinin excretion, while creatin is present in large amounts. Nitrogen is marked during the period of emaciation. *Blood.* Hemoglobin low. Leucopenia in severe cases, with a marked relative lymphocytosis. *Menses* very irregular or completely suppressed.

HYPOTHYROIDISM more common in advancing years from 35 to 50. *Onset* slow and gradual, in many cases engrafted on an old Graves' disease. *Heart*, rarely above 100, may be irregular with heaving impulse. Pulse generally shows high tension and the blood pressure is above normal. *Nervous system.* Patient may have some tremor and muscular weakness is likely to be very pronounced, but there is not the same restlessness and jactitation. Patients are occasionally irritable, but they are generally dull and apathetic; mentally slow; memory defective. Pains in joints frequent, and referred to as rheumatism; there is a marked tendency toward sudden giving way of the legs when walking. *Eye signs.* Exophthalmos is unusual, although it may have been present at one time. *Gland.* Often no enlargement can be made out; when there is a goiter it has an elastic, rubber-like consistance, occasionally cystic and nodular, but very distinctly different from the active pulsating gland of Graves' disease. *Nutrition*, generally not seriously disturbed; patients hold their weight and in most cases gain slowly; constipation rather than diarrhea, and flatulency a troublesome habit. Patients do not drink much water. *Skin*, dry, may be scaly; patients do not perspire on exertion; hair and nails dry, brittle, and scalp scaly. Pigmentation not common. Patients prefer thick, warm clothing and are cold most of the time. Much more comfortable during hot weather. *Temperature,* subnormal, may reach as low as 95°. *Urinary findings.* Albuminuria is not unusual. Nitrogen proportions do not show so marked a disturbance in creatinin and creatin ratios. In large number of cases urine practically normal. *Blood.* Hemoglobin low, white blood count normal. *Menses* generally regular but scanty.

While the degree of hyperfunction is in no relation necessarily to the size of the thyroid it is interesting to note that the family tendency as brought out in the hereditary story of thyroid, cardiac or nervous disease is frequently of important influence.

The history of infection, shock, fright, overwork, great fatigue, mental strain, worry, or accident, will often mark the onset of an atypical or severe exopthalmic goiter.

As laryngologists, we are ever alert to the influence of systemic disease upon the structures within our chosen fields of observation, yet we are prone in the hurry of routine office work to thrust aside deeper investigation. The unstable vaso-motor nervous system, gout, rheumatism, neurasthenia and auto-intoxication, especially render the subject liable to annoying symptoms in the nose, throat or ears.

Some of these cases may be classified and identified as thyroparathyroid insufficiency and appropriate treatment given with relief. We recognize marked cases of cretinism, infantalism and exophthalmic goiter or senility for example without difficulty, but the considerable number of atypical forms of disease of the ductless glands with perverted secretions and attending pathologic change and discomfort pass frequently without further investigation.

The effects of thyroid toxemia and deficiency upon the nervous, muscular and cardio-vascular system are so serious that we may find special and early symptoms in the upper respiratory tract.

When the routine examination of the nose, throat and ears includes the cervical, post-cervical glands, thyroid, and thymus, it may be possible to abort an incipient case of Graves' disease or of pulmonary tuberculosis. These conditions are frequently associated with low resistance to infection.

Our observation may include the size of the hypertrophy, consistence, shape, one or both lobes, diameter of the neck, pulsation, or bruit. We may verify our suspicions before referring the case to the internist for diagnosis. The pulse will be observed as to rate, quality, arterial tension and effect of exercise. The nervous symptoms especially are those of tremor, twitching, jactitation, insomnia, dreams or disturbed mental condition. We may also find dry or moist skin, dry, dead or falling hair, brittle nails, pigmentation, eruptions, dermographia, dyspnea, fatigue, nausea, temperature.

Again we may return to the symptoms and signs in detail as observed in our special field.

In moderate or severe thyroid insufficiency we may find a dry mouth and throat increased with excessive dyspnea on exertion; voice, husky or thick; muscles of throat tire more easily; defects or changes in speech. The mucous membrane of the lips, mouth, tongue, pharynx or larynx may be swollen and dry. The laryngeal muscles may show insufficiency.

Matthews has reported 289 cases of laryngeal paralysis in one thousand cases of goiter, seventeen of which were bilateral. In my experience, a number of cases have exhibited slight motor insufficiency according to the size of the goiter and the varying degrees of pressure. It would seem to me that as many of these cases have passing insufficiency it is scarcely tenable to term this condition laryngeal paralysis. It is quite remarkable that a change in voice is not necessarily in proportion to the degree of insufficiency.

Perversion of taste may occur. Howard observed six with abnormal taste in a series of thirty-two cases. Hume and Prudden report as high as one-third abnormal after a careful testing of the sense of taste. These occur usually in hypo-thyroidism.

In Graves' disease, taste, smell and hearing are rarely affected. In severe deficiency of thyroid secretion, hemorrhages from the nose, throat or gums are common. The amount of dyspnea may simulate cardiac or pulmonary disease of severe type. This modification of the oxygen supply due to the adrenal insufficiency may bring about a marked effect upon the hair, nails and skin.

Dyspnea in hyper-thyroidism occurs after damage to the heart muscle has occurred. In myxedema, we occasionally observe an infiltration of the nasal mucous membrane followed by thickening and occasional obstruction by a gelatinous, waxy or yellowish secretion. This may be attended by symptoms of a cramped and swollen feeling in the throat. Pharynx and larynx may assume a bluish tinge or earlier a pale, yellowish color. Angio-neurotic phenomena occur with relaxed or elongated conditions of the uvula. The interarytenoid fold may be transparent.

The dry and husky throat of Graves' disease may be attended by symptoms of cough, temperature, unilateral bruit, loss of weight, pre-cordial pain, apprehension, and anemia which may lead to a suspicion of mistaken diagnosis of pulmonary tuberculosis, and call in proper differentiation. In Graves' disease, hyperemia of the pharyngeal, bronchial and pulmonary mucosa is common.

The thyroid gland under hyper-function is often hard, and in this condition gives rise to greater pressure, which is frequently the exciting cause of tracheal cough. This may be modified by change of position and improve with a softer consistency of the gland. Some of these cases exhibited periodicity in their intervals of exacerbation and quiescence.

The abnormal psychic condition of the individual upon his discovery of an enlarged thyroid gland immediately assumes a serious phase of apprehension unless he is managed with great care and foresight.

As apprehension is one of the predominating symptoms it is often possible, without very great care, to alarm these individuals and produce a serious hypochondriacal condition.

In considering the therapy of thyroid disease in general, it is understood that the great majority of drugs are entirely useless except when occasionally indicated for the control of special symptoms. An enormous number of therapeutic measures have received the endorsemnt of many splendid physicians. It is, therefore, a question of serious consideration to know what we can do for these patients that offers something of value.

The therapeutic measures which we adopt at the present time are those selected by elimination after a study of these individuals for many years. Rest and often a change of environment are absolutely essential to the ultimate control of thyroid disease. Psychic control and management together with sedative therapeutic suggestion is of untold value. The question of success in the treatment and recovery of incipient exophthalmic goiter will frequently depend upon these two essentials.

In myxedema and particularly in the atypical forms, great relief and permanent improvement is usually attained by a careful plan of administration of thyroid extract and iodin in carefully selected dosage of carefully selected preparations. The action of the thyroid protein is specific and within the realm of prompt observation. The secretions of the myxedematous throat and nasal passages become greatly improved, and the combination of the thyroid proteids of Rogers, the proteids of pancreas or adrenals and iodin will frequently bring about striking improvement. Proper use of the galvanic cautery—the anode electrode applied along the cervical, sympathetic and the cathode applied to the neck, with a one miliampere current gradually increased—is often attended by an improvement in the consistency and size of the thyroid.

Operative interference, either ligation or enucleation, should not be postponed in cases where medical treatment does not show improvement after a reasonable time. The results depend greatly upon the skill of the surgeon, as a number of serious results may testify. The use of hypodermic iodin or the green citrate of iron is often of great service in rendering the vaso-motor system more stable. Many cases of the myxedematous type improve greatly under the administration of pure iodin. The study of the individual cases alone can definitely determine this problem.

The internal secretions and their relations to pathogenesis, physiology, and therapeutics deserve our most serious study. The role which they assume as oxygen carriers and active principles of stimulation to the blood cells of the body deserve our interest. Their role as immunizing and sensatizing functions is worthy of increased scientific interest. Their influence as governors over the vasomotor centers and regulators of harmony in the functions of the lymphoid tissue of the throat is indeed significant.

We are unable as specialists to unravel many of these great mysteries of bio-chemistry. We must call upon our laboratory colleagues with the spirit of research and untiring devotion to scientific investigation to solve these problems for us. Individually we can offer only our clinical mite. Yet it would seem that the laryngologist and otologist has sufficient interest in the newer fields of organo-therapy and pathology of the ductless glands to demonstrate that the thyroid and the tonsillar ring are involved in such a delicate and complex inter-relationship that our special opinion in this field of research may, we hope, soon prove sufficient to call the attention of the internist, the neurologist, and the general surgeon to the fact that an examination of the nose, throat, ears and larynx is at least in all modesty worth the effort.

32 West Adams Avenue.

SUSPENSION LARYNGOSCOPY IN CHILDREN.*

DR. ROBERT LEVY, Denver.

Since the discovery of the laryngoscope by Garcia no more interesting chapter in the history of laryngology has been written than the most recent one by Killian[1-2] in which he describes the discovery of suspension laryngoscopy. The original conception of a method by which a more definite, comprehensive and a closer view of the interior of the larynx might be obtained was an epoch-making thought and when after many trials on the cadaver extending over a period of two years, and many alterations in instruments he was finally rewarded with a picture of the larynx and surrounding parts, the like of which had never been obtained before, one can imagine his sense of pleasure. In addition to this, when the operator realized that the patient comfortably submitted to prolonged examinations, that he did not need the aid of assistants, and that both of his hands were free for any desired manipulation, his sensation must have been akin to exaltation.

Since Killian's original communication suspension laryngoscopy has been elaborated, its limitations and advantages having been carefully proved and commented upon. It has generally been conceded that in adults its limitations are greater than in children and in a personal communication from a former student now in Berlin, suspension does not seem to be used as much as it was. In children, however, all observers early recognized its value even before it had been tried out in many cases.

The difficulties attending the use of the laryngoscope in young children have often been so great that frequently no satisfactory examination could be obtained. These difficulties became increased when an attempt was made to perform any intra-laryngeal operation, so that in very young children, especially, it was practically impossible to perform any manipulation *per vias naturales*.

Direct laryngoscopy and tracheoscopy offered a solution to this difficult problem that was enthusiastically adopted by the profession. There are, however, many advantages in the suspension method over that of the ordinary direct endoscopy. By the latter method one obtains but a limited view while by suspension the entire field and surrounding parts are clearly before one. In operations both hands are free so that one may with ease perform an operation in this region, keeping the parts free from blood and secretion without difficulty. During suspension, the danger from asphyxia may be said to be *nil* while we all know that in the direct method, especially if the trachea is entered, this complication is one which must be reckoned with. Besides the advantages enumerated it is remarkable how clear a view may be obtained of the anterior commissure of the larynx and of the trachea. This statement applies particularly to children. In adults the most difficult region to bring into view has been the anterior commissure and although numerous modifications of Killian's original apparatus have been presented, it is believed that this difficulty represents an important limitation to the method.

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*Read at the twentieth annual meeting of the American Laryngological, Rhinological and Otological Society, Atlantic City, June 20, 1914.

The after-effects of the suspension method of examination are of no more serious moment than those of the most simply laryngeal manipulation, while in the ordinary direct method, annoying, not to say serious, swelling and edema have resulted in children.

The technic of this procedure in children differs but slightly from that in adults. It may be said to be somewhat easier, although in no event can this procedure be considered a difficult one. It is not necessary to draw the tongue forward, nor, in fact, to pay attention to the tongue. It is not necessary that the head hang far over the table; in fact, if a pillow be placed under the shoulders the head may even rest upon the table. In many instances, especially when examining or operating in the esophagus, the spatula need not be brought over the epiglottis, but resting well at the base of the tongue it will bring the parts into perfect view. Somewhat more difficulty has been encountered in tracheotomized cases than in non-tracheotomized ones. The secretions and blood flow by gravity away from the field of operation but sponging may be easily carried out and if necessary the parts may be kept clean by gentle suction, using a small electric suction pump.

The question of anesthesia in children is an important one. As a rule local anesthesia is not entirely satisfactory. The child's co-operation can not always be obtained even though one succeeds in anesthetizing the parts. Often, in order to obtain sufficient anesthesia to permit any extended investigation, cocain must be used in considerable quantity which is conceded to be attended with decided danger in children. I have attempted a number of examinations in young children without any anesthesia whatever. In one instance, a baby about a year old was satisfactorily examined and a papilloma successfully removed from the larynx. It was afterwards shown, however, that other papillomatous growths had been overlooked. On the whole, general anesthesia, preferably chloroform, has given me the best results. The Junker apparatus and tube add very much to the comfort and facility with which the anesthesia may be continued. Most of us will concede that chloroform is somewhat more dangerous than ether but the excessive secretion produced by the latter is a disadvantage, although not sufficiently great to condemn its use by those who are unalterably opposed to chloroform.

The specific uses to which suspension laryngoscopy has been applied have been numerous, despite the fact that it has been in use so short a time. It has been used (1) in the examination of cases for diagnosis; (2) for operations through the natural passages; (3) for the removal of foreign bodies.

In making an examination of the upper air passages the hypopharynx has frequently been overlooked. This method brings it into view better than any other means at our command. All portions of the larynx and some of the trachea are clearly seen, being brought closer to the observer's eye than by other methods. The field brought into view is not limited and the relations of surrounding parts are definitely established. The esophageal opening is easily outlined, enabling one to manipulate the upper part of this tube with ease. Operations in the pharynx, hypo-pharynx, larynx, trachea, upper part, and beginning of the esophagus may be carried out with ease and deliberation. Foreign bodies, especially impacted ones and those requiring some manipulation for their delivery, are more readily removed because of the advantage given by the free use of both hands. The following is a brief summary of the recorded uses to which suspension in children has been put:

Albrecht[4] reports the following: Eight cases of papilloma in children from 4 to 9 years of age in all of which these growths were successfully and completely removed. Two cases of tuberculosis of the larynx of which the first was a child, 13 years of age. There was dyspnea due to infiltration of the ventricular bands with edema and granulations of the vocal bands. Relief was obtained by the removal of the infiltration and granulations. The second was a child, 9 years of age, with stridor from infiltrated ventricular bands with ulceration; relief by removal of the infiltration. Three tonsillectomies in children aged 4, 7 and 8 years, respectively.

Henrich[5] reports the case of a child 3½ years of age, with papillomata of both arytenoids, in the subglottic region, in the hypopharynx and in the esophageal entrance, successfully operated upon.

Davis[6] speaks of the examination of an infant, 4 months old, suffering from laryngeal stridor. The cause was not determined.

In a child, 3 years of age, said to be suffering from laryngeal or tracheal obstruction, suspension was unsuccessful. Bronchoscopy succeeded but failed to reveal the cause of the dyspnea. Davis[7] also removed a safety-pin from the larynx of a child, 11 months old, and a coin from a child, 4 years old, that had lodged in the esophagus.

Seifert[8] reports the case of a child, 3 years of age, from whose esophagus a coin was delivered. A child, 2 years of age, suffering from papilloma was saved from tracheotomy by direct curettement. In a child, 5 years of age, he removed a bone from the larynx. Seifert recommends this method for the removal of vocal nodules in children, for the excision of a portion of tumors for histological examinations, for the removal of sub-glottic granulations and for the diagnosis of laryngeal diphtheria.

Freudenthal[9] reports two most interesting cases of post-pharyngeal abscess in children, 16 and 19 months old, successfully operated upon. He also speaks of its uses in tonsillectomy, having performed this operation under suspension in twenty children.

Iglauer[10] reports the case of a child, 3 years old, successfully operated upon for papillomata of the larynx; also that of a child, 5 years of age, from whose larynx he removed a broken safety-pin that had been there five months. Three cases of enucleation of the tonsils were undertaken by him. He states that he could see no special advantage in this procedure over the ordinary method.

I desire to report briefly the following cases. *Case 1.* W. L., aged 12. Moderate tuberculosis of the pharynx, extensive tuberculosis of the larynx with ulcerations and edema. This little patient suffered from slight dyspnea which gradually became worse until tracheotomy was necessary. Following the tracheotomy the patient's condition rapidly improved with ultimate healing of all ulcerations but marked cicatricial formation. This was before the days of suspension laryngoscopy. Four years after the tracheotomy, under suspension various attempts were made to remove the cicatricial tissue and dilate the stenosed larynx. The result was only partially successful and the patient is now being treated by gradual dilation with Schroetter's tubes.

Case 2: A. C., aged 2 years and seven months. At the age of 9 months the child drank some corrosive liquid, since which time she has been able to swallow only liquids. For the past nine days she has been able to take liquids only by spoonfuls. Parents suspect foreign body. X-ray examination with bismuth in ice-cream showed a small line in the upper extremity of the esophagus but it was not recognized as indicating a foreign body. Bismuth was found in the stomach. Diagnosis, stricture. Under suspension the esophageal entrance was readily explored. Esophagoscope failed to enter. Small bougie after some manipulation passed into the stomach. Larger bougie, three millimeters in diameter, also successfully passed. Following the manipulation, the anesthesia having been discontinued, retching and vomiting took place, expelling a plum seed.

Case 3: This case occurred in the practice of Dr. Lockard of Denver through whose courtesy I am permitted to report it here. A girl, aged 26 months, drank strong solution of lye about six weeks prior to coming under observation. For forty-eight hours previous to the first examination she was unable to swallow anything. Under general anesthesia suspension laryngoscopy brought the mouth of the esophagus into plain view. It was impossible to introduce the smallest Jackson esophagoscope. A small probe followed by an olive bougie, three millimeters in diameter, was finally passed, locating the stricture at seven and eight inches, respectively, from the teeth. Four hours later she was able to swallow liquids. As it was impossible to pass an esophagoscope the suspension laryngoscope was an indispensable instrument, enabling one to find and safely pass the very small opening.

Case 4: M. C., aged 2½ years. Hoarseness for five months. On direct laryngoscopy under chloroform anesthesia, multiple papillomata were found springing from the vocal bands and from the base of the epiglottis. An attempt to remove these was made, resulting in sudden asphyxia which demanded immediate tracheotomy and artificial respiration. Three months later papillomata were removed under suspension by means of Corde's straight-cutting forceps or double curette. Five subsequent operations have been performed. At various times in spite of the tracheotomy tube alarming dyspnea has occurred. Suspension laryngoscopy revealed at these times sub-glottic and tracheal papillomata which were successfully removed. Recurrence has taken place from time to time and although the voice has been partially restored, the child still wears the tracheotomy tube.

Case 5: D. P., aged 8 months; hoarseness since age of 5 months. At birth child gagged and was blue for one-half hour. Has always cried but little. At present aphonia is nearly complete. Under suspension and general anesthesia multiple papillomata were removed from the anterior commissure. Voice restored. Four subsequent operations under general anesthesia and one with no anesthesia whatever have kept the larynx fairly free. Prior to the last operation slight stridor in breathing was noticeable. Following this operation the voice returned, though husky in character, and the difficult breathing was completely relieved. Papillomata were found supra-glottic and infra-glottic.

I have been unable to find records of papillomata removed by suspension in a child of this age, although Jackson reports, in a personal communication, the case of an infant, 6 hours old, from whose larynx he removed a papilloma by direct laryngoscopy.

Case 6: A. G., aged 10 years. Hoarseness with a history of having inspired two days ago an immature wild oat or wheat head. Indirect laryngoscopy was readily carried out and revealed a green mass in the anterior commissure. Although the child was unusually tractable it was impossible to remove the foreign body by the laryngoscopic mirror and forceps. Under suspension and chloroform anesthesia, removal was accomplished with the greatest facility.

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Metropolitan Building.

ROUTINE USE OF THE BRONCHOSCOPE IN THE OUT-PATIENT DEPARTMENT.*

DR. ROBERT F. RIDPATH, Philadelphia.

Since the time of Kirstein's embryonic attempts, failures and successes, bronchoscopy has wavered, suffered relapses, regained lost ground, and is now coming to the front to its own and recognized place in diagnostic and therapeutic laryngology. Unfortunately, the proper manipulation and technic of bronchoscopic examination is hard to master and requires time, patience and constance practice and we are reminded more and more of the words which the father of bronchoscopy in America, Dr. Jackson of Pittsburgh, used in his paper, read before the International Convention of Medicine in London last year, "That this is a specialty of a specialty and should only be practiced by one or two men in a large city." This is unquestionably true as far as the extraction of foreign bodies is concerned, but a more universal use of the bronchoscope for diagnostic and therapeutic purposes I think might be advantageously employed. You will notice a deviation from practically all former technic in the passing of the instrument on the cases we will examine to-night, and I hope the few points I present may be of benefit to all.

A general or local anesthesia is essential; although examinations have been repeatedly successfully made without either. A low stool standing fifteen to eighteen inches from the floor, preferably having a concave back to give the patient a slight forward tilt, is necessary for examining all cases under local anesthesia. Confidence in yourself and instilled into your patient by your every gesture and movement is one of the main points, and counts tremendously in your successful examination. From the time of your first application of the anesthetic until the tube has been withdrawn nothing must excite the patient's ever-ready susceptible mental anxiety and cause reflex movements.

As we have all kinds and types of patients,—the neurotically nervous, the hysterically hypersensitive,—so we have the inquisitive, the sensible and the boozy-breath variety, but if there is really a condition which has been defying the ordinary therapeutic measures and has finally become a question of "I want to know what is wrong" with the patient, you will have very little difficulty in getting your examination.

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*Read at the meeting of the Philadelphia Laryngological Society, October 6th, 1914.

Anesthetising. With the patient sitting in the regular position for an ordinary examination, the applicator saturated with a 20 per cent cocain solution is applied to the tonsillar pillars, tonsils, pharyngeal wall and base of tongue. This is done quickly or slowly according to the sensitiveness of the patient, but can almost always be accomplished in one application; it, however, must be most thorough. A small amount of solution of adrenalin added to the cocain will bring about a quicker anesthesia of the membrane but for the initial examination is not advisable because of its bleaching qualities, thereby possibly masking the very condition we are looking for.

The patient is now asked to expectorate any mucus in the throat. This to a great extent prevents the swallowing and absorption of any excess of cocain solution which had been applied.

After waiting three to five minutes the second application of the anesthesia is made by means of the laryngeal applicator, a von Eicken's laryngeal retractor or a Bunting's laryngeal syringe. The same strength, viz: 20 per cent solution of cocain is used. The patient is given a small pad of gauze and told to extrude the tongue and hold it. Do not allow your patient to pull forcibly on the tongue; this causes considerable uneasiness, gagging, reflex movements and excoriations of the under-surface of the tongue due to pressure on the teeth.

With the aid of a heated laryngeal mirror, the applicator is now passed over the edge of the epiglottis and the laryngeal surface painted. The applicator is now depressed, thereby coming in contact with the arytenoids, the aryepiglotteal folds and cords. These are thoroughly coated and the applicator is allowed to remain in this position for a minute or two. The patient is again requested to spit out any secretion in the mouth.

It will be noticed that this is done by one application, instead of irritating your patient by repeated dabs here and there, each requiring opening of the mouth, correspondingly more saliva, cough and expectoration. It is surprising what a slight amount of gagging or reflex coughing is produced by the cocain-coated cotton applicator when brought into absolute contact and a slight pressure exerted instead of a quick passing over the tissues with the ordinary painting motion. Occasionally we meet with a patient who cannot put out his tongue. It is therefore impossible to catch hold of it; so it must accordingly be depressed with a tongue depressor. If we meet with a very marked overhanging epiglottis it can generally be overcome by asking the patient to sing a high pitch "E" or to inspire, in a panting fashion of sharp, quick inhalations.

If a direct examination of the larynx, cords or hypo-pharynx is wished, the tissues are now sufficiently anesthetized to permit it. If, however, we intend to pass the bronchoscope, a third application of cocain is necessary and may be done by either of the following methods:

The Skillern method: We use a long tracheal applicator, the distal end of which is bent at a slight angle for three inches in order to glide in front of the arytenoids. It has a cork screw or rat tooth-end, in which the cotton applicator impregnated with 10 per cent cocain solution is held. The patient again holds the extruded tongue and by the help of a laryngeal mirror the applicator is passed into the larynx and lies on top of the cords. A slight spasmodic contraction of the ventricular bands is very likely to occur, preventing further progress until a relaxation takes place which occurs in a minute or so. The patient lets go the tongue and bends the head back, thereby bringing the trachea and larynx in a more direct line. He is asked to take a deep inhalation, thus widening the glottic opening, when with a gentle pressure the applicator slips into the glottis and trachea to the bifurcation.

The Killian or Bruening method: After the upper larynx has been anesthetized the spatula autoscope is passed behind the epiglottis and the epiglottis brought forward, bringing into view the arytenoids and cords.

A long, tracheal applicator similar to the one employed in the Skillern method, only straight, is used, on which is the cotton applicator with a 10 per cent solution of cocain. The anesthesia is passed through the autoscope, through the glottis, and applied to the walls of the trachea as far as the bifurcation, or may even enter the bronchi. I shall speak later of anesthetising the lower bronchi. Our patient is now ready for a bronchoscopic examination.

Technic:—The clothing is loosened around the neck, the collar taken off, if the patient be a man, any plate teeth removed and the patient placed on the low stool. They are now told what is expected of them and what we are attempting to do. They are also told that if at any time during the passing, or while the instrument is in position, they wish it removed to raise the right hand and you will comply with their request immediately. You will find, particularly on a new patient, this will occur and you retain their confidence by the instant withdrawal of the tube.

The mirror and bronchoscopic tube are heated to prevent condensation of breath on its surface, and to bring the metallic tube nearer to the body temperature; the outside of the bronchoscope is lubricated with sterilized olive oil, vaseline or other lubricant; the patient's knees are placed between the operator's, who stands directly in front. The left forefinger is placed under the upper lip of the patient and pushed up; thus preventing abrasion, lifting the mustache out of vision, and also acting as a guide. The thumb may either support the finger or else rest on the lower teeth. The patient's head is now bent slightly backwards and the instrument is inserted into the mouth, passed back to the base of the tongue and the handle slightly elevated, thus allowing the distal end to slide over the base of the tongue until we see the lingual surface of the epiglottis. The index-finger of the left hand now leaves the upper lip and half-circles the tube about the center of its position along the dorsum of the tongue. We now have the tube on the lingual surface of the epiglottis where it is held in place by the hooked finger, which not only steadies it but also brings pressure on the tongue and stops quivering or nervous twitchings of its muscle fibers.

The distal end of the bronchoscope is now raised over the rim of the epiglottis and is allowed to descend about one-half inch when by a slight forward pressure with the finger the glottis is brought into view. We now place our patient in a position which will give us a direct or straight view of the trachea and with gentle pressure bring the instrument to the glottic opening, or vocal membranes. The movements and tissues must be kept in constant view and everything done in plain sight, as the least movement of the epiglottis will throw the instrument over to its lingual side and the instumentation must be done over. Although the cords have been thoroughly cocainized we frequently find a spasmodic contraction and a pause of a few seconds will be necessary. Having your patient say "ah," or take a deep inhalation will frequently open the glottis, which would otherwise give considerable trouble in passing. A half turn brings the lip of the tube in a direct line of one of the cords and a gentle rotation with a downward pressure will be all that is necessary for the instrument to enter the trachea, when the handle is once more turned in a direct line and the scope allowed to slide down to the bifurcation.

The anesthetising of the main and branch bronchi may be done by a single application of 10 per cent cocain solution applied to the walls or used in a long atomizer. The inside or telescopic tube can now be inserted and the examination done at the operator's option. In passing all of the tubes whether on the right or left side we bend our patient's body until the line of the bronchial lumen is straight, then advance until another angle presents itself, when the position of the patient is again changed to suit our view and the downward progress of the tube.

While it is not the fort of this paper to go into all the diagnosis and treatment that may be made and instituted by bronchoscopic means, nevertheless it is within its limits to speak of some of the many conditions which have fallen to the author's fortune to diagnose and treat in the out-patient department of the Medico-Chirurgical Hospital.

Tracheitis or tracheal bronchitis appears through the bronchoscope as highly inflamed or mucous-covered areas of mucosa, these extending around the whole lumen of the bronchi, or as patches along its walls, varying in size from a large pin's head to those of one-half to an inch in length; or we may find a dry condition, the secretion having formed hard crusts or scales of a dark or greenish hue and it is due to the almost inaccessible position, from a mechanical, anatomical and physiological standpoint, that this condition is so hard to cure by ordinary methods. Knowing the condition and seeing the inflammed areas the therapeutics naturally suggest themselves and we therefore apply to the diseased mucosa, after cleaning off all secretions, silver nitrate, glycero-tannin, the touching of the dry areas with an application of a 10 per cent alcoholic solution of iodin or any other measures that are indicated.

Ulcerations and abrasions of the tracheal or bronchial mucosa are treated as any other ulceration or abrasion of the mucous membrane elsewhere in the body would be treated, for by use of the bronchoscope we are able to do this and the only difference is one of location and not treatment.

Catarrhal hypertrophies of the mucosa appear as swollen, inflamed, spongy areas extending into the lumen of the trachea or bronchi and lessening its diameter. The secretion is usually found to be very tenacious and hard to remove. The treatment varies with the condition present, from the use of glycero-tannin, a 2 per cent solution of silver nitrate to the application to the swollen areas of chromic acid, fused as a bead, to an applicator.

Bronchial or spasmotic asthma: It is utterly surprising to realize the number of cases of spasmotic asthma which have their origin and continuance in a local lesion in the bronchial tree, and when this is removed are permanently cured. I recall one in which the attack of asthma and its accompanying dyspnea and cough was due to quite a large papilloma situated on the carina, the removal of which gave immediate and permanent relief. Others, if having no growth, showed a hyperemia or hypertrophy of the mucosa with tremendous amount of fetid secretion. A mixture sprayed into the lower bronchi of 2 per cent novocain, 1-10,000 adrenalin gave excellent results, curing some, prolonging the interval, and diminishing the severity with lessened amount of expectoration in all.

Obscure hemorrhage: Bleeding from any of the arteriols of the mucosa is easily seen, and by the application of silver nitrate or chromic acid controlled.

Stricture or stenosis of the trachea or bronchi: A stenosis of the trachea or bronchi as we can readily understand is a rather difficult problem. We have here an elastic membrane which can easily be dilated; but when the pressure or dilator is removed, will assume its old shape quickly; but if these dilatations are kept up sufficiently long and frequently enough, the result is all we could expect. There are several dilators, bougies and stenosis tubes which can be applied and left in the stricture for hours at a time.

Compression of the trachea with its accompanying dyspnea, due to mediastinal tumors, goiter, aneurysm, or enlarged glands may be diagnosed and possibly relieved or the diagnosis cleared by bronchoscopy, thereby facilitating the medical or surgical treatment. Syphilitic ulcerations of the mucosa are easily distinguished and the proper treatment instituted, sooner than would otherwise be possible. Obscure dyspnea is frequently found to be caused by an overabundance of fluid or mucus in the lower bronchi and with the vacuum attachment pumped out, relieving our patient who would otherwise become progressively worse.

2022 Chestnut Street.

ERRATUM: Paragraph 6, page 897, THE LARYNGOSCOPE, October, 1914, should read: "Given bilateral deafness with marked lowering of the upper notes, a positive Rinne with low bone-conduction and normal low limits for the Dench fork the cause is usually syphilis."

THE ENVIRONMENTAL SURGERY OF OTO-LARYNGOLOGY.*

DR. JOHN F. BARNHILL, Indianapolis.

In Beverly Robinson's work on "Nasal Catarrh," issued in 1880, he states in the introductory chapter: "I can believe but few amongst the most favored have seen and treated more than one case, here and there, of suppuration of the frontal sinus, or rare tumor of the brain."

He makes mere mention, only, of the fact that suppuration may occur in the maxillary or sphenoid sinus, but no intimation whatever is given that suppuration or other diseases of the ethmoidal cells ever takes place. The treatment of nasal disease advocated in this book consisted chiefly in the use of nasal douches, powders and general medication, but a brief description is given of procedures for removing polypi, cauterizing thickened nasal tissues, or for tearing the same away when too much thickened to yield to milder measures.

In the same year Buck issued a splendid treatise on the ear, abounding in excellent descriptions of the symptoms and course of aural affections. The chief operative measures advocated by him in this work are the removal of polypi, incision of the drumhead, and the cautious opening of the mastoid antrum by means of a bone drill. In neither of these representative texts of one-third of a century ago is there more than the slightest reference to intra-cranial complication as a result of suppuration in the nose or ear. There is, of course, no bacteriologic teaching, and there are no references to involvement of the venous sinuses. to orbital complications, to transference of infected materials to the cervical lymph nodes, to the infective and pressure disturbances of the fifth nerve and its ganglia, or to any of the many other diseases of the head and neck which are to-day known to originate in the upper air tract with great frequency. The practice of oto-laryngology in those days was indeed simple and was therefore more easily limited to very definite anatomical fields than is to-day at all advisable. Hence opinion as to what constitutes the proper surgical limitations of the oto-laryngologist of to-day is vastly different from that held in the early period of the specialty. At that time the view seems to have been that the nostrils formed chiefly the anatomical limits of the nose, the tympanic cavity and Eustachian tube were considered the principle structures of the ear, and the opinion of specialists of that day must have been that there was little outside the oro-pharynx and larynx, the diseases or treatment of which should interest or belong to the specialist in laryngology.

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*Read at the thirty-sixth annual meeting of the American Laryngological Association, Atlantic City, May 25, 1914.

Comparatively little was written in those days concerning the diseases or surgery of the accessory cavities or of the other intimately related environmental structures of the nose, throat and ear, which neighboring structures we now regard, in a large number of instances at least, as of more importance, judged from a pathological and surgical standpoint, than are the nostrils, tympanum and larynx themselves. Since later investigations have proved that nasal diseases are not often limited to the nostrils, aural diseases to the tympanic cavity or laryngeal affections to the larynx, and since their environment—the meninges, the ganglionic structures, the arterial, venous and lymph vessels, the lymphatic glandular system, and, in brief, practically all the structures of the head and neck—are often more the seat of disease than are the classical but vastly more simple cavities of the nose, throat and ear as formerly understood, the limitation of the surgical aspect of oto-laryngology has necessarily widened until it has in recent years often been difficult to define, its boundaries have needed frequent revision, each new adjustment has included some new anatomical field until now it would seem that no rational limitation can be placed which does not include the surgery of the whole head and neck.

Dr. Joseph Beck, of Chicago, has advocated this widened scope in the surgical practice of the oto-laryngologist. In an address before the American Academy of Ophthalmology and Oto-laryngology in 1908 he enumerated eleven reasons why this type of surgeon should include in his operative practive the environmental surgery of the ear, nose and throat. Beck then stated that it was his opinion that those sufficiently trained in surgical principles and operative practice should undertake the surgery of the mouth and lips—cleft palate and hare-lip—the surgery of the brain, insofar as the brain disease has been caused by nasal or aural affections, excision of the superior maxilla, removal of enlarged and diseased cervical glands, goiter, the external operations of the larynx, esophagoscopy and bronchoscopy, and nerve splicing when required to cure facial palsy. The reasons given for the performance of these operations by the laryngologic surgeon were that such an operator is presumed to know the anatomy of the parts better, and his skill in handling delicate instruments and reflected light should enable him to excel in this class of surgery.

I heartily approve of Doctor Beck's conclusion and believe that the best interests of all concerned will be served should we now look upon it as a settled fact that the surgical treatment of diseases of the entire environment of the ear, nose and throat, lies ethically and therefore rightfully in the domain of the oto-laryngologist. I would not, of course, advocate that all who practice oto-laryngology should undertake to perform the many difficult surgical procedures required in operations on the head and neck. It would seem, rather, that there should occur some line of cleavage in the ranks of our specialty that would be both natural as to the qualification of the individual and advantageous to the standard of our work. It is entirely probable that not all or even any considerable percentage of all who practice the specialty would profess sufficient qualification to undertake this major surgery, much of which is the highest type of all surgery. But to those who have had the rigid necessary surgical training, and who are willing to devote their entire time and energy to anatomical study and surgical progress, it would appear that their experience and training through all the stages of the practice of oto-laryngology should finally best fit them to do environmental surgery. The line of cleavage suggested would be one which divides the specialty into a class wholly surgical and a class which is largely therapeutic and non-surgical. Non-surgical treatment of the nose, throat and ear will no doubt be necessary in the future, as in the past, and such work would not only be well done, but better done by the laryngologist who is not surgically inclined but who seeks to develop the best in a therapeutic sense, and whose efforts are no longer divided between therapeutic and surgical methods of cure. On the other hand, those who have had ample surgical advantages and abundant clinical experience should in the interest of the patient and the conservation of their own energy, devote themselves wholly to the surgical side of the problem. This plan, if carried out, would serve the best interests of the patient in that he would on the one hand be saved from operations by those not best qualified to do them, while on the other he would gain by the greater experience and better judgment of the trained operator and one whose surgical efforts are not daily burdened with a large office practice principally devoted to the local treatment of non-surgical cases.

408 Pennway Building.

HYOSCIN AND MORPHIN AS A PRELIMINARY TO LOCAL ANESTHETICS.*

DR. LEE M. HURD, New York City.

The problems we have to meet in operations on the ear, nose and throat are the banishment of pain (physical) and the emotion of apprehension or fear (psychic).

Oto-laryngologists have long been adepts in local anesthesia, but we have been negligent in blocking the baneful influences due to fear. This state of acute shock, which varies from mild symptoms of syncope to profound exhaustion even to a fatal termination, is frequently observed during a supposedly safe and simple operation.

These fatal cases are often attributed to a lymphoid state, cocain poisoning, etc., whereas if the baneful influence of psychical shock had been eliminated there would have probably been no ill-effects.

We are much indebted to Crile for his studies on causes and treatment of shock. He found that it caused histological changes in the brain, the liver, and the suprarenal glands.

Shock may be produced by diverse causes, such as trauma, hemorrhage, fear, worry, infection, excessive muscular exertion, starvation, and insomnia.

The subject that immediately concerns us is to obliterate the baneful effects of the operative trauma and the emotion of fear and worry, preceding, during and after the operative procedure. Shock, due to other causes, is not germane to this paper.

The stimulation of the nerve-ceptors, both of the contact ceptor on the surface and of the special senses, causes a discharge of energy, if protracted enough produces the conditions called exhaustion or shock. The noci ceptors are most abundant in those parts of the body which in the course of evolution have most frequently been subjected to injuring contacts with the environment. There are specific noci-ceptors in the ear, nose and throat.

Fear is most powerful in its effects on the organism. Fear, accompanied by pain, may rapidly drain the dischargeable nerve energy to the condition of shock. The lack of faith, either justifiable or unjustifiable, on the part of the individual in his own ability to protect himself against real or fancied hostile environmental elements, is accountable for a large part of the apprehension.

We know that phlegmatic individuals are better subjects for surgical procedures than the nervous, therefore our aim should be to make the nervous type extremely phlegmatic.

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*Read before the American Academy of Ophthalmology and Oto-Laryngology, Boston, October 19, 1914.

The prevention of shock directly concerns us, and to accomplish this the consumption of nervous energy should be prevented, excluding all harmful physical and psychical stimuli from reaching the brain. This is done by blocking with the local anesthetic the field of operation and blocking the special senses with general narcotics. Hyoscin depresses the psychic and motor centers. This augments morphin in blocking off the special senses and reflexes. Morphin directly prevents shock (Crile)*

Application: The class of cases in which I have used hyoscin and morphin have all been good surgical risks. The worst cases were a few alcoholics and those with slight evidences of chronic toxemia. They have been the usual run of cases that come under the surgical observation of an oto-laryngologist, from submucous resection to sinus disease, ossiculectomy and malignancy of the larynx. I have never used hyoscin and morphin in the very old or in the very young.

There has been no alteration of diet. The drug has been usually given about two hours after luncheon. A state of mental quiet, where the individual has to make an effort to keep awake, with the mind free from apprehension and fear, and feeling happy and dreamy, is the ideal for which we strive. There may be a mild delirium, from which the patient will momentarily awake if spoken to loudly, and will do whatever is asked. In reaching this stage. there are no hard and fast rules for dosage or time.

I start with hyoscin hydrobromid, 1-100 grain and morphin ⅛ grain hypodermatically, after which I place the patient in quiet surroundings and under close observation.

The effects of the hyoscin are usually more pronounced than that of the morphin, the pupils dilating with some flushing of the skin and a dreamy and happy expression.

After thirty or forty minutes, if the patient still shows signs of apprehension or fear, I give from 1-200 to 1-100 grains more of hyoscin and from 1-16 to ⅛ grains more of morphin, but I vary the two drugs if the patient shows the effect of one more than the other. It may take from forty minutes to two hours to get the patient quite indifferent and in the state required for the particular operation. Naturally, a submucous resection will not require as deep an anesthesia as a case of sinusitis.

It takes considerable experience to get just the proper narcosis.

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*The author has largely drawn upon the "Anoci association" of Crile, to whom he wishes to make grateful acknowledgments.

If the patient is insufficiently under, the harmful impressions conveyed to the special sense of instruments, blood and operative procedure will show in nausea, syncope, etc.; if too far under, the patient will go into deep sleep which is unnecessary. The field of operation is anesthetized as usual.

Personally, I have ceased using cocain, not that I have had a case of poisoning, but its exhilarating effect, in its first stages, is not wanted and the after-depression is sometimes very distressing to the patient. I use alypin in the same strengths as when using cocain with the same anesthetic effect. When an anesthetic is to be used hypodermatically, nococain or urea and quinin hypochlorid is preferred.

Advantages: All shock is avoided. The patients awake from the effects of the hyoscin and the morphin without any memory of the operation, or, if remembered, the recollection is not of an unpleasant nature. For instance, sometimes a patient will have the remembrance of some hard pulling or of having heard the breaking of a bone, but it will mean nothing to the patient.

Much more extensive work can be done than under a local anesthesia alone and with less ill-effects than with the use of a general anesthesia I have done such operations as the Killian, double sinusitis *per nasam*, removal of large sequestae of lower jaw, repair and replacement of all the facial bones in a patient injured by the kick of a horse, ossiculectomy, etc.

Disadvantages: This operation takes much time and requires experience. The patient should be under the personal supervision of the physician from shortly after the first dose has been given until about an hour after the operation, which means that the patient requires attention from three to five hours.

The effects of this anesthesia differ widely, due to idiosyncrasy. I have had one failure in the case of an hysterical girl, who, when the operation was half over, broke out in tears and laughter, and was quite noisy for several hours. It is unsuitable for use in clinics and in most of the hospitals unless the surgeon or some one specially trained has the time to remain with the patient. The ordinary trained nurse does not appreciate the situation sufficiently to be left in charge, as the patient is not accountable for his actions.

Commercial hyoscin is not all alike; therefore care must be used to obtain a superior produce, and when once familiar with its action, stick to that one manufacturer. I use Merck's.

Two of my cases showed a marked fall of blood-pressure when sitting up. one, an alcoholic, had 3-200 grains of hyoscin and 3-16 grains of morphin, the other case, one of arterial sclerosis, had

1-50 grain of hyoscin and ¼ grain of morphin. The pulses immediately picked up after the operation, when the patients were put on their backs.

I might add that most of the cases were operated upon in a sitting position, which is not as favorable as having the patient lying on his back.

Another case of laryngo-fissure was awake and mentally bright after two doses of 1-100 grain of hyoscin and ⅛ grain of morphin, requiring a third dose—total of 3-100 grains of hyoscin and ⅜ grains of morphin.

Another case of frontal sinusitis required three doses to produce indifference, namely, one at 2:20 p. m., 1-100 grain of hyoscin and ⅛ grain of morphin, one at 2:50 o'clock, p. m., 1-100 grain of hyoscin and ⅛ grain of morphin, and one at 3:30 o'clock, p. m., 1-100 grain of hyoscin and ⅛ grain of morphin, after which, under alypin anesthesia, I removed the ethmoidal cells and opened the frontal and antrum into the nose, and removed dead bone which extended from the aveolar process into the antral floor.

The laryngeal case was talkative and remembered some of the operative incidents but not in an unpleasant way. The sinus case had complete amnesia.

I have used this method in a little over 100 cases in private practice. About 75 per cent of the cases were submucous resections, and the rest of the cases various conditions of the ear, throat and larynx. I have not used this method for any tonsil operations.

The dosage has ranged from 1-100 grain of hyoscin and ⅛ grain of morphin to 3-100 grains of hyoscin and 10-24 grains of morphin. In about 60 per cent of the cases 1-100 grain of hyoscin and ⅛ grain of morphin sufficed.

I appreciate that this is a limited number of cases from which to draw definite conclusions, and as the recorded results of others are not of a similar class of cases or of like dosage it is hard to draw any conclusion. The fatal cases reported show grave visceral lesions, extremes of age, or enormous dosage.

I do not advocate this method as a routine for all cases. We are using two powerful drugs. The phlegmatic patient will do well under local anesthesia alone, while the neurotic patient, who turns pale and is nauseated during a painless examination will hardly endure an operation with all of their special senses over-active, even if the operative field is free from pain, as there will be a nervous shock which can be prevented by using the above described method.

15 East Forty-eighth Street.

THE DEAF

Their Education—Improvement of Conditions—Responsibilities and Participation of the Profession.

JOHN DUTTON WRIGHT, M. A.
DIRECTOR OF THE WRIGHT ORAL SCHOOL FOR THE DEAF
NEW YORK CITY

The aim of this department of THE LARYNGOSCOPE will be to bring to the notice of its readers from month to month, facts that may be helpful to physician and patient in dealing with the life-problems involved in deafness. Suggestions from readers will be gladly received and all questions answered to the best of our ability.

The Medical Inspection of School Children with Special Reference to the Medical Inspection of Deaf Children.*

At present the kind of work which is done is as follows: The children are examined on entrance to the school and two or three times during their school career. Nurses assist the school doctor in the examinations and supervise the personal hygiene and cleanliness of the children. Cases of infectious disease are found to account for a large number of absences from school, sometimes a sixth or more of the children being absent on this account during the year. Skin diseases are found to be common, ringworm as a rule heading the list. Treatment forms no part of the work of the school doctor. The parent is notified of the defect or disease discovered and asked to get medical advice. In this way dirty heads, defective vision, disease of the ear, of the nose and throat, of the skin, and of the teeth are brought under the notice of the parent.

In addition to this function of pointing out the existence of disease, with the object of getting the parent to undertake the necessary treatment, necessitous children are fed.

The only result of medical inspection which has not to be heavily discounted is the feeding of poor school children. The child's dinner is a sound investment, however poor his home or however careless his parents be. It is becoming a truism that medical inspection must be followed by the medical treatment of school children. But treatment is urgent, and if it is to be thorough and not wasteful of the time of the child it must be undertaken in or near the school.

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*Abstract of a paper read before the Seventh Biennial Conference of British Teachers of the Deaf, by Dr. James Kerr Love, Aural Surgeon, Glasgow Royal Infirmary.

The result of bad living conditions often referred to as physical degeneration are, so far as they have been observed, not handed down from one generation to another, but are wiped out with the birth of each generation, which writes its history on what, to begin with, is a clean sheet.

The children of the slums are nearly all born healthy—as healthy and free from disease as the children of the well-to-do. It would almost seem that should a child weather the greater dangers attending poverty and overcrowding during the first five years, he will turn out average in physique if we only feed him well. It must be a great incentive to social and educational reforms to know that the children of the slums are of the material from which a healthy race can be raised at once.

I think the death rate amongst very young deaf children is less than amongst very young hearing children, because the families into which congenitally deaf children are born are smaller than hearing families, and because a little deaf child is the object of more anxiety and of greater solicitude than is a hearing child. Except for the less developed brain, and therefore smaller head, the deaf child is, so far as physique is concerned, quite like the hearing child of school age—say 6 or 7 years—and if deaf children of school age are well fed and housed, the death rate amongst them is almost nothing.

The presence of deafness and the presumption of ear disease past or present raises these points: 1. How should the hearing of a deaf child or hard-of-hearing child be tested? 2. What are the evidences of ear disease in a deaf child?

You will expect me to deal with these questions from the teacher's point of view and not from that of the medical expert.

The only test of any real value for the hearing of a school child is the human voice. Shouting and ordinary conversation may both be used, but the best test is whispered speech, the whispering taking place at the end of the expiration. Forced whispering may be made of almost any loudness, but the whisper made by the air emitted from an almost exhausted chest is for adults singularly uniform in loudness.

Using such whispering as a test, I have formulated the following rule, which may be called the "six-foot rule."

When a child cannot hear whispered speech with at least one ear at six feet, he cannot with advantage remain in a class of an ordinary elementary school, and when an adult cannot hear whispered speech with at least one ear at the distance of six feet, he cannot without difficulty conduct the business of daily life.

Such a rule, is, of course, not absolute. I have a patient now, aged 17, who does not hear whispered speech at a yard, and yet she was top of her form last month in the Girls' High School in Glasgow. Again, I sometimes meet adults who lip-read so successfully that they conduct business with less than a six-foot range for whispered speech. But the rule is a useful one in practice when applied to the average child or adult.

Amongst deaf-mute children the degree of deafness cannot be tested by the whisper. The human voice or a bell will elicit proof of the presence of any useful hearing.

If you want to find the position of the hearing-island in deaf mutes you must use a much more elaborate apparatus, such as the tuning-forks. I do not think we fully appreciate the value of residual hearing in deaf mutes. Even when it is above the speech area and when no response to voice is given, it is of use, because some of the overtones of the child's own voice are heard by him and help him to a more natural voice. They guide his remaining sense of the pitch of his voice.

All tests should be applied so that the child cannot see the instruments of the operator, and control tests which emit no sound should form part of the examination. The ears should be tested separately, the ear not under examination being closed by the finger of an assistant.

Deaf children differ from hearing children in these points, apart from the presence of deafness and its consequences: 1. They have worse eyesight. 2. There is a larger number of mentally deficient children among them—about fifteen per cent. 3. Deafness, when congenital, is often hereditary and so persistently hereditary, in spite of a healthy environment, that congenital deafness becomes one of the chief objects of attention of the medical inspector of deaf children. Broadly speaking, as we have seen, poverty and overcrowding have no ancestry and no posterity, whilst congenital deafness often has both. The heredity of congenital deafness is therefore one of the most important discussions for the medical inspector of schools.

Regarding the hereditary element in congenital deafness, the first thing we medical men have to confess is that we know too little of the morbid changes on which congenital deafness depends to dogmatize much about it. The number of complete examinations of the ears of congenitally deaf people is very small. I mean clinically, pathologically they are complete.

The second thing we must admit is that, whilst congenital deafness is hereditary, there are far more deaf children born of hearing than of deaf parents, and it is far commoner for deaf parents to have hearing children than it is for them to have deaf children.

The third thing we have to admit is that congenitally deaf children are not usually mentally defective, and can be educated quite well to become self-supporting citizens.

Put in another way, congenital deafness is oftener sporadic than continuously hereditary, and congenitally deaf children are oftener mentally normal than mentally defective. I make these statements because I wish to define the field within which any practical proposals may legitimately operate. When one is dealing with a disease like tuberculosis, with multiple manifestations due to a single cause—the tubercle bacillus—his method of attack differs from that employed when he has to deal with an unknown cause or series of causes producing a single manifestation like the congenital deafness.

I think the following indications may serve for proof of heredity of such a degree as to require interference. 1. The birth to parents, one or both of whom are congenitally deaf, of a deaf child. 2. The occurrence in a family of more than one congenitally deaf child. 3. The occurrence in a family of more than one congenital defect; e. g., blindness with deafness, mental deficiency with deafness, or epilepsy with deafness. 4. The occurrence in one generation of congenital deafness, and in a previous generation of one of the other defects mentioned under heading 3.

Now I do not mean to say that congenital deafness occurring outside of these four groups is never hereditary, but these are what may be called badly tainted fraternities. Out of these groups come nearly all mentally defective deaf and nearly all the deaf who after the school period cannot support themselves.

There is no doubt that legislation for the reduction of congenital deafness will be very difficult. Eighteen years ago I read a paper on this subject to the Royal Society of Edinburgh. Lord Kelvin, who was president, and Lord McLaren criticised my proposals as harsh and execrable, and the Society asked me to remove certain passages from the paper. This I refused to do, but instead withdrew the whole paper. Within a year I read the same paper to the first meeting of this Association which was held out of London—in Glasgow, in 1897—and, curiously enough, the paper was well received and its principle accepted by the Association. The principle was that, as some fraternities were so badly tainted that marriage amongst them was inadvisable, a commission should be appointed to consider how the reproduction of the unfit could be prevented.

I look forward with every hope. There will come a time when deaf children will be comparatively few. By the advance of sanitary science and by the better housing of the people the diseases which cause acquired deafness will diminish, and some of them will disappear. By the exercise of a wise restraint, encouraged and if necessary enforced by the state, congenital deafness will diminish, and the deaf will number, not 1-200, but 1-4000 of our population. But we shall always have some deaf children. This smaller number of deaf children will be better educated than the deaf child of to-day. The highest that is physiologically possible will be got for every deaf child.

CONCLUSIONS AND RECOMMENDATIONS.

1. The medical inspection of elementary school children as at present carried out is doing some good, but its effects are much stultified by the facts that the treatment is seldom carried out, and that school children are very, very poorly housed.

2. Attached to every institution and day school for the deaf should be an aural surgeon, who should examine all children admitted, and who in a properly equipped room should carry out such treatment as cannot be carried out at home.

3. All teachers, whether of the deaf or of the hearing, should be instructed in the methods of testing the deafness by means of the human voice and of whispered speech.

4. Whilst legislation for the extinction of congenital deafness does not seem practical at present, much may be done towards the diminution of congenital deafness by the permanent segregation of the mentally defective deaf. The study of congenital deafness with a view to preventive treatment and of necessary legislative action should be assiduously carried on.

SOCIETY PROCEEDINGS.

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

Regular meeting, October 6, 1914.

Dr. George M. Coates, Chairman.

Routine Use of the Bronchoscope in the Out-patient Department. Dr. Robert F. Ridpath, Philadelphia.

Published in full in this issue of The Laryngoscope, *p. 942.*

DISCUSSION.

Dr. Fielding O. Lewis: This was the most excellent and instructive demonstration given. There are two things I should like to mention: In introducing the tube there is a certain amount of pressure in old people liable to raise arterial tension, cardio-lesions and aneurysm, sometimes risky. There is no doubt that those practicing scientific laryngology must have some knowledge of bronchoscopy. There should be greater light at the proximal end of the tube rather than at the distal, and the secretion there is not so great. Dr. Ridpath speaks of the routine use of the bronchoscope, does he mean using it in all cases in the nose and throat clinic presenting laryngeal symptoms?

Dr. George M. Coates: I used the Jackson bronchoscope for many years. It was a distinct advance over any scope used previous to that time. With the Collier-Brunner you get a larger field and better light and you are not bothered by a small light burning out. Secretions get in and short-circuit the lights.

Dr. R. F. Ridpath: By routine treatment I mean only routine treatment of patients showing laryngeal symptoms, asthma, dyspnea, chronic cough, or something which warrants the use of the bronchoscope. All aged patients are given a thorough heart and lung examination before the use of the bronchoscope.

The Preturbinal Operation on the Maxillary Sinus. Dr. Ross Hall Skillern, Philadelphia.

Published in full in this issue of The Laryngoscope, *p. 901.*

DISCUSSION.

Dr. Coates: In discussing the merits of any operation we must consider the indications for the operation, whether internal or external. Any operation that can be done through the nose without the destruction of tissue should be done. Many cases we have failed to cure and have had to resort to incisions through the antrum and nose. The Canfield operation sounded good at first, but it must be difficult to perform. This pre-turbinal operation is really quite a distinct operation and fulfills all the indications that the other operations do. We can get free drainage, free opening into the sinus. We have drainage as long as we want it; until the sinus is in condition to take care of itself. When the disease is cured, the opening closes up and we have no loss of tissue. Often we cannot tell which side of the nose has been operated on. Is it feasible? Can it be done as easily for the patient and as easily for the operator?

There is no discomfort to the patient, less than in other operations similar to it. In this operation in contra-distinction to others through the nose, the site of operation is in view all the time; spindle piece of tissue taken out is a very necessary step; the view of the antrum is truly wonderful; the condition of the mucosa is made visible; polypoid degenerations and other parts which cannot be seen are made visible by the use of the naso-pharyngoscope.

Dr. Skillern's results have apparently been almost perfect and the cases apparently stay cured. There is no going around corners with packing and is more convenient for patients. The operation is best done with a drill or trephine. There is only one point against it, especially if you have no trephine in the dispensary. By the use of the trephine there is less chance of driving spicules in the antrum. Once this operation is learned, it ought to supplant all other nasal operations.

Dr. Alexander says he cannot see how Dr. Skillern's operation can take the place of the Denker. Speaking of spicules of bone, of the trephine slipping in the maxillary sinus, and the mere fact that you have to do a Denker afterwards, speaks for itself of the advantages of the Denker. The Denker reaches the most remote parts; you can see all over the sinus; can wash out just as thoroughly and directly. In using peptone with novocain, peptone often causes infection. In using novocain you do not need to be afraid of using it liberally, 6 cc. of novocain is all that is necessary to do a Denker operation and as to the toxic effects of novocain as a reason for wanting to keep it localized, I cannot see the reason. It is not absorbed that rapidly. There is no real reason to keep it in one spot.

Dr. Ridpath: One of the disadvantages of the Denker and Canfield operations is the incision through the canine fossa. No matter how careful you try to be, once in a while we do have a fistula or opening formed. It also gives trouble with healing. I have two cases with small fistulas that I am trying hard to cure. The incision through the antrum into the nose heals up very rapidly, quicker in fact than the curing of the disease. Although the opening is small, practically all the walls of the antrum may be seen. Curetting can be easily done. The advantages are numerous: We do not have any fistula forming; we have the opening anterior to the inferior turbinate, therefore any discharge goes out anteriorly and does not flow back as in the Denker and Canfield operations; there is no destruction of the mucous membranes of the nose.

Dr. R. H. Skillern: As far as the operation versus the Denker is concerned, I might say that this operation is by no means made to supplant any of the external radical procedures. In operating on the maxillary sinus you must use judgment and the form of operation is one of personal equation. I should not use my operation in old chronic cases. As far as novocain is concerned, Dr. Alexander is very sanguine about its use. If used freely toxic symptoms will result, it is seventy per cent as toxic as cocain. Any of these drugs injected are dangerous. Action is better when peptone is used than without it. I have never yet seen a case with toxic results; I often use it in my tonsillectomies and have never heard of infection following its use. The only reason for infection is the fact that the solution is not sterile.

BOOK REVIEWS.

History of Laryngology and Rhinology. By Dr. Jonathan Wright, New York. Second Edition, revised and enlarged, pp. 357, illustrated. Cloth, $4.00. Lea and Febiger, Philadelphia, 1914.

In recent years there has been manifested a great increase in the interest shown by the American medical profession in matters pertaining to their science. Most of the large medical schools provide courses of lectures on the history of medicine, many articles pertaining to it appear in the medical journals, and some interesting and valuable books have been published. Most of the American publications have, however, been of a biographical nature. In Germany and France, on the other hand, the scientific study of what may be termed the philosophy of medical history has for many years been pursued with much ardor and most valuable results. Dr. Wright's work is a successful attempt in that direction. In this, the second edition of his book, he has not only added to the material included in the first, but also broadened its scope and improved it in many directions. The text of the first edition was originally published in the columns of The Laryngoscope and attracted at that time much favorable comment. Its author is too well known for his original research work and his scholarly attainments to require any introduction to his readers.

In the pages before us he first collects the scanty references to rhinology and laryngology to be found in the writings of the ancients and shows how even from the oldest known medical authorities something of interest may be gleaned. Continuing down through the centuries he reviews in an exhaustive manner every step until the science of laryngology becomes an established entity, and then goes on to the present year of grace with what constitutes an invaluable guide to the reader who wishes to find out the beginning of any of the great steps which have led to our present achievements. Throughout, the work forms a connected whole and not its least valuable parts are the pages in which contemporary influences on the progress of medicine in general are narrated.

Only those who have attempted the study of medical history in its relation to the other sciences and to the general intellectual development of the world can fully appreciate how much labor and research these brilliantly written pages manifest. The book is one which should be constantly consulted by every writer on subjects pertaining to laryngology in order that some of the frequent errors made by those who content themselves by merely reviewing the modern writers on the subject may be avoided.

Long before the discovery of the laryngoscope much good work had been done by pioneers in the field of diseases of the nose and throat and yet how few of our profession, to their shame be it said, ever refer to their labor.

Dr. Wright has evidently consulted the authors of the past at first hand, and consequently has avoided the snares which entrap those who content themselves with compiling their records from the pages of others. He merits the sincere thanks of the entire medical profession. It is to be hoped that his labors may stimulate others to undertake work of a similar nature in other specialties.

Packard.

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452

IN MEMORIAM.

John Lanson Adams, M. D., was born August 9, 1860, at Westport, Connecticut. He received the degree of A. B. at Yale, in 1883 and entered the College of Physicians and Surgeons in New York after graduation, receiving the degree of M. D. in 1886. He then served for eighteen months as an interne in the New York Hospital.

After leaving the New York Hospital he served on the House Staff of the New York Eye and Ear Infirmary until 1888, when he went abroad to continue his studies. He returned in 1890 and was appointed Attending Surgeon in the Aural Department of the New York Eye and Ear Infirmary, where he remained until his death on September 25, 1914.

Dr. Adams was a member of the New York Academy of Medicine, American Laryngological, Rhinological and Otological Society, American Otological Society, American Ophthalmological Society, New York Otological Society and the American College of Surgeons.

At a meeting of the Board of Surgeons of the New York Eye and Ear Infirmary, held on Tuesday, October 20, 1914, the following resolutions were adopted by the Board:

Whereas, The death of Dr. John L. Adams has removed from among us a distinguished and admired colleague, and has deprived us of a wise counselor and an honored friend.

Resolved, That the Board of Surgeons of the New York Eye and Ear Infirmary desires to express its sincere appreciation of the high professional attainments of Dr. Adams and its profound sympathy with his bereaved family.

Resolved, That in the death of Dr. Adams, otology has lost the services of an able practitioner who was at all times an earnest student and an ornament to his profession.

Resolved, That these resolutions be spread upon the minutes of the meeting of the Board of Surgeons of the New York Eye and Ear Infirmary and that an engrossed copy of the same be transmitted to the family of Dr. Adams, as a token of respect.

Committee appointed to draft resolutions.

FRED. WHITING,
E. B. DENCH,
GORHAM BACON.

In the death of Dr. Adams all institutions concerned in the welfare of the deaf and in advanced methods of teaching the deaf, have lost an ardent and active friend. Dr. Adams was elected as chairman of a special committee from the Section of Otology of the American Medical Association to investigate and promulgate the teaching of the deaf in medical schools and to stimulate the otological department in every university to include in its lecture-course at least one address, to each medical graduating class, on the deaf child, his classification, disposal and education, and a syllabus of such subject-matter has been prepared by his committee and sent to the medical department of every university in the United States, and in Canada. Otology will miss his able representation in this important constructive work, which has for its ultimate purpose the active and practical enlistment of the medical profession in this glorious cause.

M. A. G.

THE

LARYNGOSCOPE.

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to The Laryngoscope.)

CONSERVATIVE TREATMENT OF SUPPURATION OF THE ACCESSORY SINUSES OF THE NOSE.*

Dr. E. B. Gleason, Philadelphia.

By conservative treatment is meant such measures either medicinal or surgical as tend to restore the normal functions of the inflamed sinuses, in contra-distinction to radical operations whose object is to destroy the affected structures.

The considerable number of patients who have sought relief from conditions that they state are infinitely worse than those for which the radical operation or operations were done suggested this paper. In some instances the stories have been absolutely astounding as to the trifling symptoms for whose relief a Killian operation for example was performed. In one case a number of radical operations were done where it was stated by the patient that the sole subjective symptoms were increased post-nasal secretions and occasional headaches. Somewhat numerous cases of a similar character have lead to the conclusion that the more difficult knowledge to acquire is not how to do difficult operations but when not to do them.

Stucky[1] states, "within the past three years I have been especially impressed with how little intra-nasal surgery is necessary to relieve the most complicated and serious conditions in which the visual apparatus presents the most alarming symptoms, and I am finding fewer cases that require the radical external operation even for the relief of suppurative pan-sinusitis."

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*Read at the meeting of the Section on Otology and Laryngology of the College of Physicians, Philadelphia, October 21, 1914.

Protests against excessive radicalism in the treatment of accessory sinus disease have lately become somewhat frequent, from all parts of this country and abroad. Dr. J. J. Kyle,[2] in a paper on the diagnosis and treatment of nasal sinus suppuration, read before the Section on the Eye, Ear, Nose and Throat of the California State Medical Society states that "meningitis is seldom a result of sinus suppuration but of an operation to relieve the chronic condition." In the discussion of Dr. Kyle's paper. Dr. H. Thomas stated that he had examined 1,500 cases and that, instead of sinusitis cases having optic neuritis, out of hundreds of cases of optic neuritis, but a small percentage had sinusitis, the larger majority of whom were luetic.

Simon Oppenheimer[3] states that "if free drainage is present and there are no signs of ill-effects on the general health but only an occasional headache, and if the patient can be kept under observation, the risks of radical operation more than counterbalance the advantages." Prof. Kuemmel of Heidelberg,[4] after reviewing a fatality following removal of the ethmoid labyrinth, states, "that unless there is some vital indication, too little is better than too much interference in chronic frontal or ethmoid sinusitis."

That orbital lesions, the result of ethmoid suppuration, sometimes recover without operation is shown by the following case: William O'C., 65 years of age; divergent squint of left eye present for about three weeks; left-sided frontal headache; syphilitic history negative; negative Wassermann reaction; x-ray shadow within the orbit connected with opaque ethmoid cells. No pus in the olfactory slit nor beneath the middle turbinate. All operative treatment refused, even the removal of the middle turbinate. Treatment consisted of 10 grs. of iodid of potassium three times a day part of the time and the deposite of 5 drops of iodin-potas, iodid-glycerine above and beneath the middle turbinate each day. There was complete recovery of all ocular functions after about five weeks.

January, 1914, Dr. Herbert M. Goddard[5] exhibited a so-called "fulminating" case of frontal sinus suppuration with exopthalmus and greatly impaired vision, which promptly subsided as the result of establishing drainage from the frontal sinus by means of Sullivan's rasps. This is probably the simplest method of destroying the naso-frontal duct in cases where the frontal sinus can be probed, but when the sinus cannot be probed the method of Mosher is preferable. However, either method usually affords ample drainage from the frontal sinus.

In a series of ten cases of ethmoiditis recently treated by the writer, eight were acute and two chronic. Of these, three had the anterior cells opened by Mosher's method and one chronic case had exenterization of the posterior labyrinth with opening of the sphenoid antrum done by the Mosher method. The second chronic case is apparently cured and the other five acute cases recovered without operation.

The method of treatment in suppurative cases with pus flowing from beneath the middle turbinate and into the olfactory slit is as follows: The parts are first cleaned by douching with normal salt solution. Pledgets of absorbent cotton saturated with 2 per cent cocain are then pressed into the olfactory slit and beneath the middle turbinate where they are allowed to remain for about five minutes. The operator is provided with a number of pure silver tubes about nine centimeters long. These tubes are of about the size of a frontal sinus probe, but some are slightly larger, some smaller. When screwed to the end of a hypodermic syringe they make excellent probes, as they can be bent to a curve suitable for entering the frontal and sphenoid sinus or any accessible portion of the nose.

After the cotton pledgets saturated with 2 per cent cocain have been removed, a cannula at the end of a two drachm syringe is introduced beneath the middle turbinate or into the olfactory slit and all pus removed by suction and douching. Four or five drops of some medicant, in most cases 10 per cent argyrol, is then deposited between the middle turbinate and the external nasal wall and also in the vault of the nose through the olfactory slit. The position of the infundibulum should be borne in mind, as it sometimes acts as a reservoir for the solution while the proximity of the nasal walls produces capillary attraction which retains the solution for a considerable time in intimate contact with diseased structures in the same manner that pus is often retained in this locality. Frequently the ostium of the frontal, but more especially that of the sphenoid, is readily penetrated by the curved cannula and the sinuses cleansed and medicated if required. Often the sphenoid is penetrated almost inadvertently, but the introduction of a small amount of argyrol into a normal frontal or sphenoid sinus is apparently absolutely harmless.

There is a decided tendency for acute sinusitis to recover spontaneously, provided the ostia of the infected cavities remain patulous and the argyrol solution deposited about the ostia reduces the inflammatory swelling of these regions and tends to bring about this result by maintaining effective drainage. Where this treatment is not sufficient, operative measures must be resorted to. The simplest is the removal of small polypi from beneath the middle turbinate, which as pointed out long ago by Garel[6] of Lyons, France, are not infrequently found in this locality as a cause of obstructive drainage. The next simplest method is the fracturing of the middle turbinate toward the septum or when the vault of the nose is narrow, the removal of the middle turbinate. Stucky[1] states, "the middle turbinate seems to be the chief offender and should be dealt with as radically as is consistent with the conditions, at the same time conserving tissue and protecting against traumatism."

A middle turbinate which is too large for the space it occupies is a common cause of recurrent attacks of congestion of the frontal sinus and ethmoid cells. It is a frequent cause of asthenopia and unilateral headaches. Even in cases where the transillumination and the x-ray show a shadow in the frontal sinus and the ethmoid, all symptoms sometimes disappear after removal of the middle turbinate. Trans-illumination and x-ray negatives are often misleading because as stated by Ballenger[7] it is impossible from the shadow to make a differential diagnosis between the simplest kind of catarrhal inflammation and purulent infection.

Of the intra-nasal operations for improving the ventilation and drainage of the frontal sinus, there are the rasps of Good and Sullivan and the obliteration of the ad-nasal duct by Mosher's method. In each of these methods there should ordinarily be as little destruction of the anterior ethmoid cells as the conditions of the case will permit, and it is often advisable to preserve at least the major portion of the middle turbinate.

The same remarks as to the tendency of acute accessory sinus suppuration to recover when there is good drainage through a patent ostium also applies in a less degree to chronic cases. At any rate, it is usually possible to get rid of the pain, even though a scanty discharge still continues; but such cases may have a return of headache from time to time as the result of coryza. The end-results are usually infinitely better from conservative treatment than when the entire ethmoid labyrinth is exenterated by either the methods of Hajac, Ballenger or Mosher. Especially when both labyrinths are removed, the frequent end-result is a dissatisfied patient; while the number of fatalities and such serious results as blindness or otitis are more numerous than generally supposed.

Before doing a Killian operation or even a complete exenteration of the labyrinth by the Mosher or other intra-nasal method, the risks and possible end-results should be carefully explained to the patient. From the Killian, there is external deformity, possible external fistula, double vision or blindness, and complete exenteration often causes accumulations of mucus, sensations of discomfort in the nose and chronic pharyngitis with a dry, sore throat. There is a possibility of a fatality from either operation.

There are doubtless a few cases of acute fulminating suppuration and some chronic suppuration where the Killian operation is justifiable or even imperative; but the fact remains that those who have done the fewest Killians or complete exenterations of the labyrinth by the nasal route have the least to regret in the number of dissatisfied patients, and except where the symptoms are most urgent it is better to resort to less radical procedures, which in the majority of cases are adequate and yield infinitely better end-results. Ballenger[8] states: "After an experience of more than 400 cases operated via the vicious circle of the nose, I am convinced that but few cases of frontal and ethmoidal sinusitis require more radical surgical interference."

Fortunately, the proximity of important structures has rendered curettement of the sphenoid so dangerous that it is rarely attempted. The removal of a considerable portion of the anterior wall is usually followed by a rapid improvement in the condition of the sphenoidal mucous membrane, so that a cure is established before the anterior opening closes. The same is probably true of large opening into the posterior ethmoid cells. Necrotic bone, the usual excuse for a radical operation, is extremely rare in the nasal accessory sinuses; polypus is probably the most common condition interfering with cure by conservative methods, and except when polypoid degeneration exists and the mucous membrane is damaged beyond repair, conservative treatment of accessory sinus suppuration is amply sufficient. However, as Miles[9] states: "It is a question of what is a true polyp. Whether it is capable of going back to normal. It would seem that almost all flat polyps have that power.

As a method of diagnosis, trans-illumination but more especially clinical symptoms are infinitely more reliable than the x-ray; because as long ago demonstrated by Caldwell, the opacity of pus to the x-ray is precisely that of normal salt solution or pure water. A shadow in the x-ray negative of the nasal accessory sinuses ordinarily means simply swollen mucous membrane. It persists for a long time, for example in chronic antrum cases where good drainage has been secured and all clinical symptoms have disappeared. The mere presence of a shadow in an x-ray negative of the accessory sinuses is certainly not an indication for a radical operation except for gentlemen of little learning and less judgment anxious to impress upon the uninitiated their operative ability.

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2033 Chestnut Street.

Case of Dermoid Polypus of the Pharynx. R. J. Pouget, *Rev. hebd. de Laryngol.*, May 16, 1914.

Dermoid polypi of the pharynx are rare. In his inaugural thesis in 1908, Bastgen could collate only twenty-seven cases from available literature. An equal number have probably been described since that date.

In the case reported, a girl of 10 years, the tumor was pyriform, pediculated and the size of a large almond. Its attachment was between the two tonsillar pillars on the right side just above the tonsil. It was removed by a galvano-caustic snare.

In the microscopic examination, in addition to the usual histologic findings in such cases, the tumor contained a small grape-like gland of the salivary type, and the author asks if this may not be a small aberrant parotid gland. Scheppegrell.

A FURTHER REPORT OF CASES OF INFLAMMATORY AFFECTIONS OF THE LABYRINTH.*

DR. WENDELL C. PHILLIPS, New York City.

On January 10, 1913, in conjunction with Drs. Fowler, Kopetzky and Sharp, I had the pleasure of reporting twenty cases of labyrinthine affections before the Sections on Otology of the New York Academy of Medicine.

Since that date a series of six cases have occurred in my various services, this series including one private case of Dr. J. J. Thomson and one of Dr. J. C. Sharp. In the former series the diagnosis and treatment of the cases was given in full without comment or conclusions. The same rule is followed in the present series, it being my belief that there are certain points in the management of purulent labyrinthitis that can only be settled upon a basis of an extended series of cases.

I take this occasion to suggest to the members of this society that they keep careful notes of every case and report them in full, especially autopsy data whenever it can be secured.

Case 1: S. Z., male, aged 52, seen for the first time September 9, 1913. Nine years ago abscess in right ear. Discharge began without pain, has continued since then, and has always been foul. Eight weeks ago attacks of vertigo in the mornings. Attacks increased in severity and four weeks ago nausea and vomiting with each attack accompanied by severe headache on right side. He was compelled to remain in bed, unable to raise his head without vertigo, nausea and vomiting. For the past two weeks he has felt better and has been up and about again; complains now of slight unsteadiness in his gait, and headache. During the attack four weeks ago he had fever and has lost considerable weight. He does not remember when he had hearing in his right ear; mind clear; recognizes and can name objects presented to him. Pupils are equal and react promptly to light; knee jerks increased; no ataxia in arms or legs; no spontaneous pointing error; no adiadochokinesis; no paresis arms or legs.

Functional examination: Right ear, total deafness, (noise apparatus). Spontaneous rotatory nystagmus to both sides, more marked to left (sound side). Patient has tendency to fall to the right irrespective of the position of the head.

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*Read at the forty seventh meeting of the American Otological Society, Atlantic City, May 28, 1914.

Rotation to right, nystagmus 17 degrees—probably compensation nystagmus. Rotation to left, nystagmus 18 degrees. Caloric, right negative.

Caloric, left rotation nystagmus. Right lasting 2½ minutes (not prolonged). Fistula test negative.

Operation: Radical mastoid operation and drainage of labyrinth (September 12, 1913).

Large cholesteatoma which had eroded tegmen of the attic aditus and antrum was discovered. Large exposure of dura middle fossa which was covered with cholesteatoma, matrix and granulations. Large irregular fistula in external semi-circular canal; oval window does not contain stapes.

Post-operative: Pulse 70-80. Temperature 99.6°-100.8°. Headache persists, but patient appears better. Slight facial paralysis.

September 30. Headache persists. Pulse, temperature, eyes, normal. Appetite fair. Plastic with closure of posterior wound. Considerable gain in weight.

October 7. Very little headache. Temperature, pulse, eye grounds normal.

October 10. Patient left hospital. Condition good. Feels well. Radical cavity not completely epidermatized. For almost a month patient gained in weight, felt well, grew gradually stronger, and was considering his return to his work, but he did complain of more or less persistent headache, all other localizing signs being absent.

November 6. Suddenly intense headache, vertigo, nausea, followed by high fever and persistent vomiting. Re-admitted to the hospital. Temperature 103°, pulse, 86, head retracted, neck rigid, cervical vertebrae tender, pupils sluggish, knee jerks increased. Kernig positive, delirium. Cerebro-spinal fluid turbid, contains many leucocytes and cocci. The same night, chiefly for the reason that his headache had invariably been located in the temporal region, extending to the outer angle of the orbit, I decided to explore that region first. The same night I evacuated a large tempero-sphenoidal abscess; pus green and very foul. After evacuation of abscess, pulse 120. Death in twenty-four hours from diffuse purulent meningitis. No autopsy could be obtained.

Case 2: S. T., male, aged 24 years, admitted to the Manhattan Eye, Ear and Throat Hospital September 16, 1913.

Chronic purulent otitis media, right, for past twelve years. Discharge moderate in amount, and at intervals ceased entirely. General health good. Wassermann negative. One month ago cold and earache for two days accompanied by an increase in the discharge. Felt suddenly faint after a few moments, vertigo and vomiting which occurred at intervals for two days. Thereafter he experienced vertigo whenever the eyes were rotated to the side; vertigo also when stooping. He had an attack two days ago but at present is not dizzy.

Functional examination: Voice right, 8 feet. Voice left, 2 feet. Weber to right, Rinne both negative. Spontaneous nystagmus toward both sides about equal. Turning to right, nystagmus 16 degrees. Turning to left, nystagmus 21 degrees. Fistula test positive.

Operation: Radical mastoid operation. Large fistula in the anterior limb of external semi-circular canal. Following operation, partial facial paralysis. Hearing present, no increase in the spontaneous nystagmus. September 23, condition unchanged. No vertigo. September 30, plastic with suture of posterior wound. January 17, 1914, hearing present, whisper at few inches. Rotation to right, nystagmus 23 degrees. Rotation to left, nystagmus 29 degrees. Caloric positive. Fistula test negative. Facial paralysis subsiding.

Case 3: E. C., female, aged 10 years, Dr. Sharp's patient. Chronic purulent otitis media, right, since infancy. Discharge rather profuse and foul. No tenderness of mastoid, no edema, fundus full of granulations.

Functional tests: Right ear, hearing totally destroyed, (noise apparatus). Caloric positive. Fistula test negative.

Operation: April 16, 1914, radical mastoid operation was performed by Dr. Sharp in the Manhattan Eye, Ear and Throat Hospital. No fistula in the labyrinthine capsule. Cavity not yet epidermatized. Hearing entirely destroyed.

Case 4: E. S., male, aged —, admitted to the Manhattan Eye, Ear and Throat Hospital, January 28, 1914. Dr. Kopetzky had charge of the case.

Family history negative. Previous history: Has always been well and strong. At 8 years of age was operated upon for a "swelling" behind the right ear. This ear was re-operated upon when he was 16 years old Since that time the ear has discharged constantly but not profusely. For the past few days slight headache. Patient presents a partly epidermatized radical cavity. Inner tympanic wall contains few granulations. Some discharge. No tenderness.

Functional tests: Left ear hearing normal. Right ear total deafness, (noise apparatus). Caloric positive. Weber to left. Schwabach right shortened. Rinne right negative ad infinity. Spontaneous nystagmus to both sides more marked to left. No Romberg or ataxia. Rotation to right, 20 degrees. Compensation. Rotation to right nystagmus 18 degrees. Caloric right negative. Weber to left. Fistula test negative.

Secondary radical operation by Dr. Kopetzky. In the region of the tube, granulations and polypi. The inner tympanic wall consisted of dense, newly formed bone which had obliterated the foramen ovale, the foramen rotundum and the entire labyrinth. Small exposure of sinus. Plastic and suture. The radical cavity is now completely epidermatized.

Case 5: Case of labyrinthine fistula. I am permitted to report this case through the courtesy of Dr. J. J. Thomson.

M. C., female, aged 18 years, was seen for the first time January 16, 1914, and gave the following history: She has always been a healthy girl, and with the exception of measles, chickenpox and whooping cough, has not suffered from any of the usual diseases of childhood. She stated positively that until six weeks previously, she had never had any trouble with her ears. Her father and mother, in spite of repeated questioning, also were positive that she had never had discharge or even an earache. No family or personal history of tuberculosis could be obtained.

Six weeks ago she had a severe cold followed by acute otitis media in the left ear. The drum ruptured spontaneously and the ear has discharged profusely since. She has not had any marked pain since the rupture of the drum, but the mastoid has been tender at times for the past four weeks. She has had tinnitus and defective hearing in the left ear since the beginning of the otitis. The day before her visit to me, she noticed that she was a little dizzy when she turned her head rapidly, and the morning of January 16 was more so, but was able to be about, and only felt dizzy when she turned her head. She had not vomited or felt nauseated.

Examination: The drum could not be seen, on account of narrowing of the canal at the fundus. There was what appeared to be a granulation at the bottom of the canal. There was a moderate amount of discharge not very malodorous, culture from which grew staphylococcus aureus only. The mastoid was very tender, but not swollen. Temperature was 99.4°, and pulse 88. There was hearing in the left ear, but only a loud voice could be heard, and she lateralized the Weber to the left ear. The caloric test was negative, but I think this was due to our inability to get the water far enough into the canal. There was a very marked positive fistula test. Compression would cause a rotatory nystagmus toward the diseased ear which would last for several minutes. There was no spontaneous nystagmus.

The following day the same tests were made and gave the same result. All the symptoms were the same. It was decided to wait a few days before doing any operative procedure, on account of the recent onset of the dizziness. January 18 she vomited a few times and felt nauseated a good deal, and said for the first time that she felt dizzy while lying quietly in bed. There was also a slight spontaneous nystagmus toward the good ear.

Operation: The mastoid cortex was removed with the rongeur without the use of a chisel to avoid jarring. On its removal, a whitish membrane presented in the cavity which resembled somewhat the lateral sinus, but while we were observing it, pus began to exude from beneath it under pressure, and it proved to be a membrane enclosing about two drachms of pus and granulations. Culture from pus did not grow any bacteria. This was a large perisinus abscess. A radical operation was done. The incus was not seen, but the bleeding was so profuse that I could not tell positively that it was not removed without being observed. A portion of the malleus was recovered, and the stapes was seen in place. There was a large fistula in the horizontal semi-circular canal, occupying the position of the maximum of its convexity. This fistula was covered by a pad of granulations.

The evening of the operation there was no change in the nystagmus. It was still directed to the sound ear and was apparent on the slightest rotation to the right, but not when the patient looked directly ahead. During the next twenty-four hours the patient was comfortable, there was no dizziness or nausea, nor rise in temperature.

January 21. Patient is feeling well, has good appetite, has not been dizzy and temperature is normal. The spontaneous nystagmus is less marked than before operation but is still present, and is directed toward the sound ear. In the Weber test the sound of the fork is heard in the operated ear. January 23. First dressing. Wound is clean, temperature normal, no dizziness, and the spontaneous nystagmus has disappeared. Weber lateralized to the operated ear. Patient is allowed to sit up. January 31. Plastic operation performed. Posterior wound closed. Stitches became infected in the lower part of posterior wound. Wound opened. February 16. Wound doing well. Middle ear epidermidalized. February 25. Wound entirely healed and patient discharged. Hearing distance for the whisper in the operated ear is 20 feet.

Case 6: Report of a case of suppurative labyrinthitis. This case came to Dr. Phillips' Clinic at the Manhattan Eye and Ear Hospital April 5, 1913. He gave a history of dizziness for about two weeks. He had chronic suppuration for a great many years in both ears. Both ears were discharging slightly at examination. Patient did not complain of anything but dizziness and deafness. Tests: Hearing in both ears tested with noise apparatus. Very little hearing in right ear. Rotation to right, nystagmus to left for 14 seconds. Rotation to left, nystagmus to right for 9 seconds. Caloric test negative in right ear, not used in left. Patient sent to hospital. A few days later he complained of severe headache, and had a temperature of 100°. Neither mastoids were tender, and the discharge was less in each ear. Tongue coated and remained so in spite of free catharsis, The severe headache continued for a week, the patient was rational, memory good, eye-grounds clear, temperature from 100° to 102°. Pulse gradually became slower until it was 60, but at times it would go to 88. No retraction of head, dizziness disappeared, headache improved after ten days, but returned. Leucocytosis count negative; headache, variable, but usually present, localized to the left side. No vomiting. Patient gave a history of syphillis, and has old cutaneous lesions. Wassermann was negative.

Examination on April 18 showed very little change. Patient rational and clear. Memory good. No pain or percussion of head. No mastoid tenderness. No dizziness. Nystagmus spontaneous to the left. Hearing for watch apparently present in right ear. Hearing in left. No restlessness. Headache still present. Tongue coated. Temperature 102°. Had a chill in the morning. Exploration of the cerebellum the following day. Decided on anti-syphilitic treatment. Also ordered spinal puncture. Examination of fluid showed it to be loaded with streptococcus mucosa. Chemical tests showed excess of lactic acid, absence of copper reducing agent. Patient almost unconscious. Facial paralysis present. Condition very bad. Operation, drainage of cisterna magna. Cerebellum directly under dura. Only small amount of fluid escaped. Patient died same night.

Autopsy: Mastoid filled with pus—purulent labyrinthitis—meningitis—no abscess. Autopsy of head only permitted. Removal of the cranial vault showed the dura very adherent to the bone throughout its extent. The meninges tissues thickened—evidence of a chronic inflammatory process presented.

The opened meninges revealed a large collection of thin fluid in the meshes of the pia. The largest collection of this fluid was found in the posterior cranial fossa. The membranes at the base of the brain generally were more acutely inflamed than elsewhere.

Upon removing the brain, a rather distinct collection of whitish pus—in contrast with the other collections of fluid found—was localized at the internal auditory meatus, filling this structure and bathing the facial and the auditory nerves. The removal of the adherent meninges from the bone on the internal side of the petrosa, disclosed darkly discolored bone, involving the tegmen tympani, and tegmen cellulae mastoidea.

Opening the tegmen in these regions, we found the tympanic cavity filled with purulent contents, semi-fluid in nature. The malleus was recovered and found to present no evidence of necrosis. The incus was not found. The removal of the tegmen cellulae mastoidea revealed the mastoid process filled with dark, discolored, thick, but semi-fluid mass—some intra-cellular walls were present, but the probe easily broke down these evidences of an acute infection of the mastoid process.

Opening inward into the cochlea from the internal auditory meatus, we found this structure likewise filled with similar purulent matter, the only anatomical structure intact being the promontory. The superior semi-circular canal was likewise discolored. The lateral sinus on the right side contained a red thrombus—probably a post-mortem condition.

Brain: Pial vessels injected. Both lateral ventricles much distended with a water-clear fluid. Incision into two sections of both the cerebrum and the cerebellum failed to reveal any abscesses.

COMMENTS ON AUTOPSY FINDINGS.

The Autopsy findings warrant the following conclusions:

1. The patient suffered from an old, chronic meningeal inflammation. His admission of having had syphillis would explain this finding, in spite of the negative report of the Wassermann.

2. There was an acute exacerbation or an acute infection of the middle ear and the labyrinth cavities. The intact malleus, with its ligament attachments, speaks against a chronic middle-ear infection. The bacterial finding also speaks against a chronic otitis media. The acute infections involved the middle ear, including the

mastoid process, and the labyrinth, finally breaking endo-cranially along the route of the nerves, facial and auditory, to begin the infection of the meninges at the internal auditory meatus.

3. The infection resulted in a general involvement of the basilar meninges, and the accumulation of purulent fluid in the posterior cranial fossa—a posterior basilar meningitis resulting. The distension of the lateral ventricles by water-clear fluid was a secondary manifestation.

4. The facial paralysis noted as presenting itself on April 19, just prior to operative intervention of the meninges, is accounted for by the route travelled by the infection from the internal ear to the meninges.

5. The operation for the drainage of the cisterna magna was not successful, in so far that there was present at autopsy a very large collection of pus in the posterior cranial fossa, which was not drained off by the procedure, although this opening did not sufficiently divide the foramen magnus from the internal side.

(Note). There is no way of telling whether this accumulation of fluid in the posterior cranial fossa was an artifact of post-mortem incident, or not. Certainly at the time of operation there was no such collection of fluid present, as the cerebellum presented itself immediately upon incision of the dura.

40 West Forty-seventh Street.

Surgical Treatment of Post-operative Palate Defects. G. V. I. Brown, *Jour. A. M. A.*, May 16, 1914, p. 1539.

For successful closing of palatal defects, their underlying factors must be discovered and corrected. If a second operation be necessary it should only be performed after nine months or a year. Patients who have been operated on in early infancy by compression or a forcing together of the maxillary bones with silver wire and lead plates present the most difficult post-operative defects. They have nasal defects, histories of middle-ear and mastoid disease, deformities of mouth due to contracted palates, and loss of tooth-germs due to destruction when inserting wires. Ed.

NEW SUBMUCOUS SEPTAL OPERATION.

Dr. O. Tydings, Chicago.

In 1909, this operation was first performed upon a girl, 9 years old, for the correction of a nasal deformity due to trauma, received some years before.

The triangular cartilage had been fractured and it had united at nearly a vertical angle, the anterior edge projecting into the right nasal cavity, the apex into the left, producing marked stenosis upon each side.

While in this case the operation was limited to the cartilage, subsequent work, by myself and later by my associate, Dr. O. J. Nothenberg, has demonstrated that it has a wider range of application than I at first thought.

The advantages are that: 1. It preserves intact all the structures of the septum, unless there be a redundancy of tissue, in which case to that extent it should be removed. 2. When correcting a displacement of the so-called columnar cartilage any operation which removed this part of the septum leaves a lack of sense of resistance while wiping or touching that part of the nose, which is somewhat disquieting to the patient. 3. Where there is a distinct dip to the tip of the nose this can be elevated, making a marked improvement in the appearance.

Forms of deflection: The three most frequent are: The purely cartilaginous where the displacement is anterior to the mesethmoid and vomer articulation; 2. those beyond this articulation; 3 those which involve both the cartilage and bone.

Cartilaginous: In the pure cartilaginous deflections or displacements, whether due to trauma or developmental causes, the incision is made upon the convex side just anterior to the deflection going through the coverings and cartilage to the perichondrium upon the concave side. Then taking a slightly curved elevator with its concavity towards the concave side of the septum, you elevate the perichondrium and its overlying membrane past its juncture with the mesethmoid articulation moving along the line of least resistance, which is usually near the center of the cartilage going beyond the mesethmoid and vomer. When this articulation is passed dissect towards the floor in the line of least resistance until it is reached, when with Freer's elevator to you (angular, dull elevator Figure 1 B.)

start forward hugging the vomer until you reach the interlacing periosteum at the superior anterior border of vomer. This is severed with Freer's (sharp angular elevator, Figure I d). Proceed forward until you have elevated the perichondrium upon the concave side of the cartilage, which will take you into the opposite nares to the point of entrançe, elevating the perichondrium ahead of you, loosing up all constricting bands until you have the maxillary crest upon the concave side laid bare. You then go to the convex side and elevate the perichondrium upon that side for about ⅜ to a half inch along the border to form a flap, when you have placed the cartilage in the perpendicular position. After this you release your cartilage by severing all adhesive bands and push it over in the groove along the maxillary crest upon the opposite side. You then place in position your flap, it usually drops there, and introduce your retaining splint.

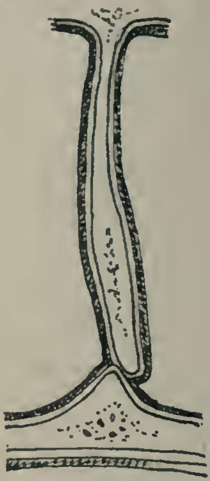

Figure I. Vertical section of an ordinary deflection.

For this I have used Meyer's or Kyle's splint, but have early learned that an ordinary shawl-pin two inches long with head covered with sealing wax is the best for this work. This is introduced through the loōse connective tissue just anterior to the cartilage starting from the concave side and passing through. Turning the pin a little more than parallel to the septum you re-enter the mucosa and try to get under the perichondrium and force it at an angle of about 45 degrees toward the floor of the nose, so as to engage it in the dense structures at the anterior part of the vomer, and find anchorage in the bony floor.

Where you have a marked bending of the septum it is sometimes necessary after crossing over this elevation to again pass through the cartilage at its junction with the vomer, and find anchorage on the side of the vomer from which you started.

Where you have the so-called columnar displacement you press the mobile septum and mucosa toward the concave side, making your incision just over the anterior part of the cartilage so as to throw your line of incision well back of the tip of the cartilage. When your work is done this places it where it will be held in position with the pin, as well as enable you to make a space anterior to the bony septum to receive the cartilage. I sometimes anchor this with sutures, using no pins, or again I use both pin and sutures.

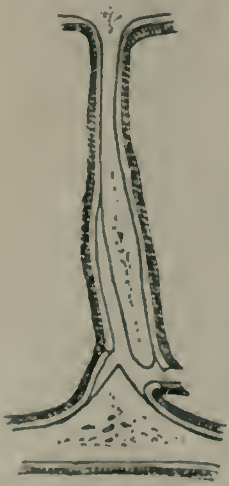

Figure 2 shows the dissection complete.

Deflections beginning behind the triangular cartilage and mesethmoid vomer articulation: These are of two kinds and due to developmental causes. 1. Where the septum is perfectly straight upon one side and protrudes into the other side of nares. This is due to the squeezing out of the vomer nasal cartilage and can be remedied by elevating the periosteum over this structure and shelling it out of its bed. Generally it is easily accomplished. You then replace coverings and introduce a light gauze packing for twenty-four hours.

2. Cases where bone and vomero-nasal cartilage are both deflected. In these cases you start high up on the septum, pressing through the triangular cartilage just anterior to its articulation with the mesethmoid to the concave side and elevate the periosteum over

the concave surface covering the interlacing periosteum over the anterior superior border of vomer. The periosteum is then elevated over the convex side of the bony septum and vomero-nasal cartilage which is removed and if necessary the bone is severed towards the floor where the bend starts and shoved into position. The bone here is generally very friable, but more frequently than not you can get anchorage of your part, loosened up upon the concave side of the vomer, sufficient to hold the parts in place. When you do you can remove the gauze packing, which you introduce upon the convex side, after the part has been held in position for twenty-four to forty-eight hours.

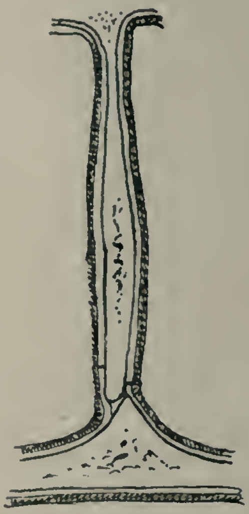

Figure 3 shows the position when replaced.

Often you will find the vomer perfectly straight and only the mesethmoid and vomero nasal cartilage deflected, but you must free with a chisel all of the deflected surface before attempting to replace it.

3. Where triangular cartilage, mesethmoid and vomer are deflected. In correcting these cases you start as you would if cartilage alone were involved and your dissection is in the same line, but more extensive. You go just beyond the limit of bony deflection on the concave side elevating the perichondrium and periosteum to the extreme limit of the deflection. You then return to the side of your primary incision upon the convex side and elevate the overlying structure, exposing cartilage and bone. You then sever all restraining adhesions, whether fibrous, cartilage or bone, always keeping in

mind the interlacing periosteum at the anterior superior part of the vomer and that bone and cartilage have their own separate coverings.

In severing bone start at the beginning of the deflection, below. You use the chisel and this is more easily accomplished after the removal of the vomero-nasal cartilage. After all is free you place the structures in a perpendicular position, making sure that your soft tissues on the convex side are not pinched by the replaced structures, but can be used as a flap. Then introduce your splints with pin and gauze to retain them in position.

Most deflections can be corrected by this method; only a small proportion of the thickened and irregular deflections need the classic operation of Prof. Freer, to whose inventive genius I am indebted for the instruments which have made this operation possible.

31 North State Street.

Tonsillar Operation in Children. Ernest Winckler. *Monatschr. f. Ohrenh. Bd.* 48, *Heft.* 6, 1914, p. 776.

Mackenzie, in his famous article on the "Massacre of the tonsil," pleads for the conservation of an organ that he considers of great importance for the child's metabolism. Winckler, on the other hand, advocates for this procedure the heaviest armament of faucial warfare, the tonsillectome. In a number of cases he examined the blood of the patient before and after the operation and proves that the child is not worse off minus that "superficial" structure. In some instances the percentage of hemoglobin was increased after the operation. In the serum of patients suffering from tonsillitis and peritonsillar phlegmon, protective ferments were found, that in Abderhalden's dialyzing test decomposed tonsillar tissue. These anti-tonsillar protective ferments were also met with in people with normal tonsils and were present to some degree in the serum before and after the removal of the tonsils. The writer concludes that the tonsils play no role whatsoever in the metabolism of the body, and ought, therefore, to be removed—the sooner the better. Based upon these facts, eugenic legislation of the future will have to make tonsillar circum-excision compulsory. It is to be hoped that the right to perform this non-sectarian act will be restricted to the rhinologist.

Glogau.

A FEW INTERESTING POINTS IN REGARD TO BRONCHIAL ASTHMA AND REPORT OF A VERY SEVERE CASE CURED BY INTRA-NASAL SURGERY.

DR. WILLIAM T. PATTON, New Orleans.

It is generally accepted that bronchial asthma is a neurotic affection characterized by hyperemia and turgescence of the mucosa of the small bronchial tubes and a peculiar exudate of mucin. The attack may be due to direct irritation of the bronchial mucosa, or may be induced reflexedly by irritation from other parts of body, such as cardiac, renal, stomach, intestinal, genital, uterine, nose or throat and possible eye. Cardiac and renal could be classed as mechanical, due to edema and stasis, or irritative, due to toxemia. It is the writer's opinion that the most common source of reflex irritation is the nose and throat, reflexly involving the pneumo-gastric nerves—such conditions as polypoid or suppurative ethmoiditis, deviated septa, enlarged middle turbinates, pressed upon by the septum and outer wall of the nose, hypertrophied inferior turbinals, diseased tonsils, especially the adhesive type, also lingual tonsils.

The tonsils may act in two ways, by reflex irritation and by causing slow toxemia. Should we not be able to find any trouble, or should the treatment of conditions found not improve the asthma, we are certainly justified in passing the bronchoscope and will often find one or more small ulcers or hyperemic spots in the trachea or bronchial tubes, which should be treated by application of silver, argyrol, glycerite of tannin or whatever seems proper for the condition. It is often wonderful to see the immediate improvement in these cases. Given a case of asthma, the intestinal tract should be carefully studied and treated, then the heart and kidneys should be carefully looked after. If the trouble is not located, the nose and throat should then be carefully examined and any abnormal or diseased condition removed or treated.

The case I am about to report was a most severe and obstinate one and I believe it was only through most careful and untiring nasal treatment that he was cured.

Mr. W. P., age 27, came to me October 30, 1913. He was desperate and had been to all kinds of specialists, including dietician, heart and lung specialist, osteopath and even Christian Scientist, but none gave him any relief and he wondered if his nose could be the cause of the trouble.

He has been suffering from asthma for the past ten years, at times very severe and never entirely free from some wheezing; has lost considerable weight, is not able to attend to business and as he expressed it, was ready to give up. The patient does not smoke and drinks very little.

Examination:—Nose: Septum badly deflected to left and high up, pressing on middle turbinate, deflected to right in lower part, touching hypertrophied inferior turbinate. Pus coming from right ethmoid region. Tonsils submerged but apparently not causing trouble, mucous membranes of pharynx and upper larynx all red; ears apparently normal. Submucous resection advised, to which he willingly consented. Urine shows no indican or other abnormalities; heart, normal; lungs, characteristic signs of asthma.

October 14. Complete removal of septum nasi, under cocain and novocain. October 15. Packing removed, patient passed good night and now wants to go to office. October 16. Nose healing nicely; considerable discharge from right ethmoid region; no headache, patient claims his asthma is better. November 1. Nose has been cleaned and treated every day or so. It is still slightly clogged and pus is still coming from ethmoid region. Right middle turbinate removed in order to give better drainage. Patient claims he is fairly free from asthma.

November 4. Mixed infection phylacogen (2 cc.) given subcutaneously in dorsal region. November 6. Patient had only slight reaction. November 7. Phylacogen (3 cc). November 8. No reaction, 5 cc. given. November 10. Slight reaction, 5 cc. given. November 11. Slight reaction, 5 cc given. November 13. Slight reaction, 5 cc. given; feeling pretty good, only slight wheezing and nose is clearing up; much less discharge. November 17. Had chest examined by internist; only asthmatic rales found. November 19. Mixed infection and pneumonia phylacogen (5 cc.). Right side of nose blocked and considerable discharge. Did not see patient again until November 29. He claims he has been feeling fine.

November 30. On account of persisting discharge from right side ethmoids curetted. January 9. Patient has been free from asthma up to a few days ago, when he contracted severe cold and his whole head became choked up. Examination of left side showed it to be all clogged up with free discharge; cleansed and treated with argyrol packs; 5 cc. phylacogen. January 12. Intense reaction from last injection; nose much improved and patient feels much better. January 14. Phylacogen (5 cc.). January 16. Phylacogen (7 cc.). January 19. Phylacogen (10 cc.). No reaction and again slight attack of asthma. January 20. Not getting any reaction from 10 cc. phylacogen subcutaneously, decided to give it intravenously; 2 minims in median basilic vein. January 22. Slight reaction, 5 minims in vein. January 23. Slight reaction, 10 minims in vein. Patient slightly better and only slight reaction. January 24, 18 minims in vein. January 26, 40 minims in vein. January 28, 60 minims in vein. January 31, 75 minims in vein, all causing only slight reaction; patient improved after each dose.

I did not see patient again until February 17, when he had very little asthma, but had a very severe laryngitis; could not talk above whisper. Examination reveals arytenoids swollen and red, small ulcer in inter-arytenoid region, both cords red. Examination of smear for T. B., negative; lingual tonsils enlarged and causing irritative cough.

February 17. Has been treated daily, larynx slightly improved, lingual tonsils removed. March 2. Much improved, no asthma. March 7. Patient became overheated, danced all night and contracted another severe cold, nose clogged and discharging freely; 40 minims phylacogen intravenously. March 9, much improved. March 11, 50 minims phylacogen intravenously. March 14. Had quite a reaction from last injection but now feels fine; 20 minims phylacogen intravenously. March 29. Seen several times a week, intra-tracheal injections 10 per cent iodoform in liquid alboline and several doses phylacogen.

May 1. Larynx entirely well and looks normal, feels fine. July 6. Patient feeling fine only occasional cold in head; has good appetite; gaining weight; nose clear, and no discharge nor asthma. October 23. Heard from case only recently. He is feeling fine and happy.

This case is very interesting in that each time asthma appeared there was always some swelling and discharge in the nose, and until nose was cured of all abnormal conditions asthma persisted. Undoubtedly phylacogen was of great value in this case, for we could abort the asthma, if injection was given in time. However, I do not believe it should be used until all sources of irritation are removed, and then it should be pushed to limit and not given up after few doses. In all, the patient received 75 cc. phylacogen subcutaneously in twelve injections; 27 cc. phylacogen intravenously in fourteen injections without alarming reactions. The patient usually had a chilly sensation, pains in head and over body in about an hour, which lasted for several hours. Then he felt fine for several days.

1109 Maison Blanche Building.

RETRO-PHARYNGEAL ABSCESS WITH RUPTURE, ASPHYXIATION AND DEATH FOLLOWING AN ACUTE ATTACK OF TONSILLITIS.

Dr. C. Coulter Charlton, Atlantic City.

R. T., male, aged 8. Family history, negative for tuberculosis and lues. Child's previous health good. Patient developed a mild attack of acute tonsillitis and consulted a physician who administered treatment and advised the parent to bring him back in two or three days, if not improved. Apparently, the child was in good condition the next day, and returned to school. Two weeks later he returned from school one afternoon, playful, cheerful and after eating his dinner, retired for the night. The next morning the child remained home from school, saying that he was feeling sick and weak but complained of nothing definite. About four o'clock in the afternoon the patient was seized with a coughing spell and complained of fullness in the throat. His mother was alarmed and called the family physician. He arrived as the child was taking his last breath. I was also called, but on my arrival, ten minutes after that of the other physician, the patient was dead. The physician reported that the child had died from asphyxiation, but was unable to assign its cause.

On examining the throat, I found a small amount of pinkish, muco-purulent discharge which I mopped out. Upon further examination I discovered a rupture of the mucous membrane in the pharynx, on the right side posteriorly, above the arytenoid. By inserting a bent probe in this opening I found a cavity containing some of the same discharge as was found in throat, but I was unable to make out any necroses.

Most of these cases have been reported in children under a year of age and with a history of trauma, tubercular or luetic involvement.

I think we may learn from this case: (1) how extensive a condition of this type can develop without causing any symptoms or complaint in a child of 8 years; and (2) how a mild attack of acute tonsillitis may be complicated with a serious result like this one.

From the preceding report you see the child's death was caused by asphyxiation due to the ruptured retro-pharyngeal abscess, following a mild attack of acute tonsillitis two weeks previous.

111 South Illinois Avenue.

ELIMINATION OF SPEECH AND VOICE DEFECTS.*

Mr. Bernard Cadwallader, Cleveland.

Permanent elimination of speech and voice defects, or speech and voice recovery, rests upon perfect co-ordination of the speech and voice apparatus, diaphragmatic breathing and absolute mind-control.

The entire speech and voice machinery of the speech defective is in a state of chaos. Similar to an engine running wild, lacking the guiding, controlling hand, will and mind of the skillful engineer.

Stuttering and stammering—I use this double term advisedly and refer you to my article in the *Cleveland Medical Journal,* December, 1911, presenting in detail the classification of each, and my reasons for so doing,—does not come from malformation of the organs, but from a wrong activity of the organs. Whatever mystery there is about stuttering and stammering comes from a lack of knowledge of physiology and psychology of speech, and also from not knowing just what *are* the wrong conditions, the wrong positions, and the wrong movements during the activity of the organs concerned. In spite of what is claimed to be known of speech, of its visibility, etc., it cannot be seen and we know not for certainty just what takes place during the speech act. The speech machinery in normal activity cannot be seen until some non-interfering way is discovered of illuminating the parts. The laryngoscope in use makes normal speech and even normal phonation impossible, so that it is of little use in solving the problems confronting the speech specialist; for speech defects are caused by the interfering action of certain muscles set into activity by wrong speech concept, or by abnormal or subnormal conditions arising from imperfect co-ordination. It may also be defined as a conflict between the voluntary and involuntary systems—using the word "System" as including the various specific systems as differentiated by medical authorities.

The way a child learns to talk is the way the speech defective must learn to talk, if he is ever to reach permanent normal speech. The brain centers and the nerve centers must be permitted to do their work uninterfered with by any conscious effort on the part of the speech sufferer.

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*Read before the Section on Ophthalmology and Oto-Laryngology of the Cleveland Academy of Medicine, September 14, 1914.

Peripheral effort must be stopped: Phonation is just as much an involuntary act as deglutition. If one should set out to control the swallowing of food or drink by attempting to work a particular muscle disconnected from its associate muscles, he would fall into trouble, but his attempt would be no more fruitless and foolish than the attempt of the stutterer and stammerer to control his speaking by a similar effort.

The first step, then, is to form a right speech concept, to *know* definitely and clearly the process of speech control. In none of man's other functions is there greater proof that "mind is master of matter."

From now on, the character of the speech process and habit will be gradually reversed. Mentalizing more and mechanicalizing less.

I have made five divisions to my present plan of elimination: 1. Training speech muscles through sense of touch at speech points of contact. 2. The elimination of the monotone through inflection. 3. Diaphragmatic breath-control to eliminate throat clutch. 4. The short phrase to eliminate rapid continuous speech and to prevent the possibility of talking on a breath exhaust. 5. Permanency of ne speech-habits through reading aloud and conversation.

Training speech muscles: Our work of speech reconstruction will begin with letters, then words and afterwards phrases.

I give my pupils each letter of the alphabet to make, so that I may observe how *they* make them. We find an overwhelming sympathetic muscular activity. For example: In making the "B" (a labial) which should be made with a delicate touch, or meeting of the lips, and the contact broken as quickly as possible, we find the entire power of jaw, lips, tongue and throat involved in its production.

A classification of the consonant is now presented. The linguals, L, N, D, T, S, soft C, made with the tongue—just the tip of the tongue delicately touching the hard palate as near the teeth as possible, with jaw, lips and throat in repose. The labials, M, P, B, W, made with the lips daintily and delicately touching each other, with jaw, tongue and throat in repose. The gutterals, K, Q, G, and hard C, made in throat, with lips, jaw and tongue, maintained in absolute non-activity and repose The same exacting discipline and training is employed on the dento-labials F and V; Dento-linguals, Th; and aspirate, etc.

From now on, each speech-part involved (in making such classification) must act independently and without sympathetic action of the other parts.

Hitherto the speech defective has been in bondage to the consonants. The vowels have been slighted. In our next progressive step of elimination, the study of words, we shall reverse this. He will now slight the consonants and linger or raise on the vowels. The vowels are the melody or song of the words. In them lie not only the beauty and power of speech, but his safety.

In word-study I introduce one of the most revolutionary factors of elimination, viz: inflection and natural accents of words. When formulating my plan of elimination, I found the more I safe-guarded the pupil's work with symbols or markings of a distinctive character to represent the principles to be used, to simplify the technical phase, the more completely could they concentrate the mind on the sensations of touch of lips, teeth, tongue and throat, etc., thereby increasing the efficiency and quality of the work.

The complicated and numerous markings of the etymologists in emphasis and inflection I found too cumbersome. My classification of words must be as simple as possible. I call the word with one syllable, the inflected word. The word with two or more syllables, the accented word. Over the inflected word, I use a large V, over the accented word an inverted V, and smaller inverted v's one to each syllable. This also develops smoothness and perfection of syllabic development, mentally and in utterance. These help wonderfully in establishing deliberation and poise, and rythmic flow, eliminating the irregular, jerky, spasmodic banging together of syllables and words, against each other.

People generally would be greatly benefited in their speech if they would take a course of such training and discipline. As a people, we should be ashamed of our speech and our speaking-voices. The same slovenliness, lack of interest and ignorance, would not be tolerated in anything else. George Eliot in commenting on English as spoken, said: "They have a pronunciation that crushes out all color from the vowels, and jams them between jostling consonants." "Language is the tool by which all knowledge is acquired," says Dr. Berle.

Breathing: Full, deep, diaphragmatic breathing is of the utmost importance to the speech defectives. This must be established to relieve the vocal cords of the imposition of breath-control and inevitable throat clutch.

Exercise: Stand erect, chest high and active, while taking in breath, expand at the waist with diaphragmatic muscles, hold the latter tightly while counting 20, slowly increase gradually to 40. The full, tight sensation in the throat at first experienced during this exercise, will pass away when the diaphragm muscles have become accustomed to their work—leaving the throat free and untrammeled.

The Monotone: Webster's unabridged definition of speech is, "A going up and down in the voice." Perhaps the most common and the largest contributing cause of all speech-defects is the monotone, yet strange to say all of the so-called guaranteed-to-cure systems of stammering schools are based upon this very defect, thereby intensifying the stammerer's condition and making him more helpless and hopeless. He cannot raise above the tone of pitch upon which he starts because of the cramped, fixed condition of the vocal cords; hence the enforced monotone.

The permanency of our new speech-habits is established through reading aloud and conversation. We have several links yet to add before we introduce conversation as the final factor in elimination.

1. Phrase analysis. Where to raise voice; where to rest voice; where to breathe. Speech-figures will be a help in deciding on which words to raise—nouns, verbs, adjectives, etc. For the want of a better term, I refer to this group as mind measurement of phrases. 2. Reading aloud with markings; reading aloud without markings; the necessity for reading aloud.

Hitherto, our principles have been studied separately. Our next step is to blend them in actual speech. To go directly into conversation at this stage would defeat our purpose. The pupil has not become familiar enough with his new speech-principles to allow mental diversion. In reading, the thoughts and words are chosen for him, enabling him to focus his entire mental concentration on his markings. He cannot now go astray. Every phrase will be perfect. This will be continued until smoothness, freedom, poise and confidence are established. Conversation antiphonally will be the beginning of the end.

Treatment of small children: It is altogether unnecessary to allow a small child to drift into a fixed habitual speech-defective condition because it has not reached the reading stage. My plan with 4, 5 and 6 year-olds proves satisfactorily. I work through picture-books and ask them to repeat after me whatever we see, and mark them in a similar way on the large card shown.

I insist, of course, that the mother, (or some one who is with the child at home) comes with the child and thoroughly understands the work to be done at home, so that in her conversations with him she uses whatever instructions may have been given to correct sluggish, awkward or weak muscles, etc., of the tongue, lips or throat.

"Precepts and rules are repulsive to a child, but happy illustration winneth him," says Tupper. To bring about exaggerated use of subnormal conditions, which the majority of small children's conditions are, I give an exercise, the appearance of a game; thus working at *the cause* unconsciously, through producing sounds rather than speech.

The value of all the practical work lies *not* in the knowledge of it, but in daily application until incorporated into new speech-habits. The question always asked, "How long will it take to cure me permanently?" will depend upon the responsiveness of the abnormal speech-conditions, on the pupil's industry, patience and perseverance. No other branch of pedagogy is compelled to change the habits of from five to fifty years' standing which are becoming daily and hourly more firmly fixed. Add to this difficulty the varied conditions and need of each individual, which demand complete mental concentration of teacher and pupil. *Therefore, treatment not founded upon this individualistic basis with adults must logically fail.*

Inflection: Hitherto, the vowels have been slighted, the consonants made too prominent and exaggerated unnecessarily and disastrously. This will now be reversed. Raise and linger on the vowels; the consonants should be daintily touched and left quickly to get to the vowels, the song and melody of the word. "Take care of the consonants and the vowels will take care of themselves." This will prove to be the most interesting work in the entire therapy of elimination.

Make the strong words carry the meaning and the unimportant words no more than they should have. I refer to the strong words as sense bearers.

This subject is one of the most vital of all. Time forbids further development.

Direct tone work: The three exercises for direct tone cannot be used safely where there is vocal derangement. Such must first be treated with indirect tone work, so delicate and varied in its scope and need it could hardly be presented here. A jack-knife in the hands of a small boy is not a good working-combination. The knowledge to use a tool is of more consequence than the possession of the tool.

The speech-specialist must be a *voice-specialist too.* He must know the principles and experiences of the use and preservation of the singing voice. Without this complete knowledge and experience it is impossible to eliminate all imperfections of voice and speech.

A boy, 11 years of age, came to us recently. He both stammered and stuttered. After a few lessons I discovered his speech trouble was caused by weak vocal cords through mouth-breathing—congenital adenoids. His cords would phonate only through force in the highest register.

The adenoids had been removed one year before. The operating physician insisted the voice and speech-trouble would pass away. The parents wisely saw the boy was gradually becoming worse and needed assistance. Many physicians do not seem to realize that custom and habit are as difficult to fight as disease. After the boy's voice had been made strong by suitable exercises and nose-breathing established it required but a few weeks to change his speech-difficulty through inflection, short phrases and avoidance of talking on exhausted breath.

Larynx: The position of the larynx must not be omitted as a factor in speech-freedom. Its low position will add resonance, good tone, and quality to the voice and prevent crowding the base of the tongue. The efforts of the stutterer and stammerer to speak, have made the up-pulling muscles overwhelmingly strong and the down-pulling too weak to act. In our student days the late Emilio Belari rightly insisted on the position of the larynx as being of the utmost importance to the development of the singing and speaking voice.

So much has been written and said about speech-defects that voice-defects have been overlooked. Weakened vocal cords make inflection, on which so much depends, an impossibility, and the monotone a certainty—and derangement of laryngeal muscles are responsible for much of the trouble which cannot be reached through the articulating machinery.

Temperament: We have hitherto dealt only with the process of defective elimination. It is just as important to take into consideration the individuality and personality, the capacity for mental concentration, and the industry and patience of the stutterer and stammerer. These traits are as varied as the speech-defects and upon the skill and tact used in handling them depends the success as largely as upon the solution of speech problems.

Nervousness is not a cause of speech- and voice-defects, else why should they become self-possessed, calm and confident when speech freedom is gained? Nervousness is a by-product of stuttering and stammering.

Did time permit, I would like to go into detail relative to interesting cases of sub-normal speech- and voice-conditions sent to me recently by Dr. Kerr, Dr. Howard, Dr. Cogan and Dr. Abbott. One of the most remarkable cases I have ever had was the one sent by Dr. Abbott—a young man 17 years of age. A Boston physician and surgeon had told the mother that the boy was born without vocal cords. When I had done all I could for him the young man's brother told me he almost yelled the roof off the Lennox Building while under the influence of an anesthetic. This vocal development had been produced in eight months of daily work.

Lalaphobia: The speech-defective acquires many other defects of speaking and thinking. He may indistinctly and hurriedly develop a weak and husky voice. He may develop so much timidity or bashfulness that he becomes a sadden recluse or a startling combination of verbosity with awful grimaces. His power of attention and his readiness of thought are frequently seriously affected through multiple thought, word substitution and use of synonyms. For each of these defects there are methods of cure as precise and reliable as the melody cure.

In conclusion I cannot say too emphatically that class-work in stammering-schools always ends in failure and disappointment. They teach only tricks of waving hands or arms, snapping fingers and sing-songing the words on a monotone. Permanent speech freedom can be established in every case only through individual study and treatment.

214 Permanent Building.

New, Double Self-retaining Nasal Speculum. Max Unger. *Jour. A. M. A.*, May 16, 1914.

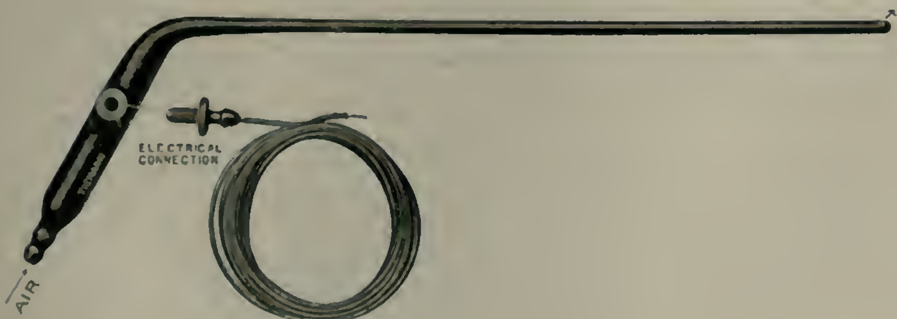
Unger describes and illustrates what he calls an "ideal speculum." It is made of spring wire and consists of two pairs of fenestrated blades, one pair for each nostril. The whole speculum is about 3 inches wide and about 2½ inches high. It is small, simple and complete in dilating both the nostrils at the same time, in staying in place, and in not interfering with the operator. He says that the time of a submucous resection operation is shortened one-quarter by its use.

AN ELECTRODE FOR FULGURATING THE LARYNX.*

Dr. Sidney Yankauer, New York City.

When fulgurating the larynx for papilloma certain difficulties are met. If the wire carrying the current comes in contact with the tissues, a short circuit is established and the spark is extinguished. As soon as the current is turned on, however, a spasmodic contraction of the larynx occurs (even when the anesthesia is sufficiently deep to prevent a refler from ordinary touch) and the spark is extinguished. The spark at best reaches only the surface of the growth.

To overcome these difficulties, the electrode here presented has been devised. It consists of a hard rubber tube bent to form a handle, and of appropriate shape and dimensions to be used conveniently with the direct laryngoscope, or better still with the suspension laryngoscope of Killian. The interior of the tube, from the tip to a point on the handle near the bend, is lined with a metal tube to act as a conductor. The distal end is closed, but near the tip of the instrument a small opening, about 1 mm. in diameter, has been drilled through the hard rubber insulation and through the wall of the metal lining. At a point on the handle near the bend there is a threaded hole and at its bottom a piece of metal in electrical connection with the metal lining. Into this hole, a hard rubber screw is fitted which carries the conducting cord. The electrical conduction extends from the connection near the bend to the bottom of the small hole near the tip; the lumen extends



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*Read before the Section on Rhinology and Laryngology of the New York Academy of Medicine, October 28, 1914.

from the end of the handle to the small hole near the tip. To the end of the handle a rubber tube is attached, through which compressed air at a pressure of about fifteen pounds is delivered.

To use the electrode, it is first introduced into the trachea and a small amount of air at a low pressure is blown into the trachea so as to blow out any ether vapor which may be present. The tip is then brought out into the larynx, the full air-pressure turned on first and then the spark. The rubber insulation prevents the tissues from coming in contact with the conductor. The air-current blows away any secretion which may cover the growths and at the same time separates the individual tufts of the papilloma, so that the spark can reach the base of the growths. It dilates the ventricle of the larynx, so that its interior becomes accessible. By rotating the instrument, any part of the larynx can be treated.

I have used the instrument only a few times but I am satisfied that fulguration is more effective when done in this way than by use of the simpler methods.

616 Madison Avenue.

Foreign Bodies of the Upper Air Passages and of the Esophagus.

M. Weingartner. *Ztschr. f. Laryngol.*, Sept., 1914, p. 333.

The writer completes his report of a series of rather rare foreign bodies within the upper air passages and the esophagus by a number of valuable suggestions. A foreign body should be suspected whenever indistinct pulmonary changes, hoarseness or stridor are met with, even in an entirely negative anamnesis. First the larynx should be locally inspected, then a roentgen picture taken, to be followed by bronchoscopy or esophagoscopy. Suspension laryngoscopy should always be resorted to in children, especially when the foreign body is located within the larynx or hypopharynx. In more difficult cases this method should be also used in the adult, as it permits of an easy introduction of the bronchoscopic tube. With the interior of the larynx being continually exposed and with both hands of the operator being free, an emergency tracheotomy may be avoided by introducing into the bronchi a thin rubber tube alongside of the obstruction. Glogau.

NEW, DIRECT-VIEW, SELF-RETAINING LARYNGOSCOPE.

Dr. Max Unger, New York City.

I beg to submit to the medical profession a new, direct-view, self-retaining laryngoscope.

As seen in Figure 1, the instrument consists of a tongue-blade. a palate-blade, a palate-blade supporter and screws for connecting and manipulating them. The tongue-blade is long and narrow, to reach from the teeth of the lower jaw to the base of the epiglottis, and is fastened at right angles to a handle. The palate-blade, also, is long and narrow and is meant to reach from the hard palate, just back of the teeth, to the cervical vertebrae near the arytenoid cartilages. The ends are suitably shaped to fit the parts. The palate-blade is fastened at its proximal end (C) to the palate-blade supporter. The palate-blade supporter is long and narrow, and its lower end is shaped like a two-pronged fork, with the tines bellying out in the middle to form a space to look through. To the lower ends of the tines (C) is fastened the palate-blade, by hinged joints.

The palate-blade supporter lies flat on the handle of the tongue-blade and by a screw arrangement at A can be made to slide up and down it along its longitudinal axis. Movement of the palate-blade supporter causes the palate-blade to move to or from the tongue-blade. The distal end of the palate-blade can be made to approach or recede from the distal end of the tongue-blade by turning the screw at B, which controls a lever extending from the palate-blade up alongside one of the tines of the fork.

To use this laryngoscope it is necessary to have the patient thoroughly anesthetized, either locally or generally. Use for local anesthesia an equal mixture of 20 per cent cocain and 1-1000 epinephrin. No assistant is needed. After the patient has been anesthetized he is put, face upward, on a table, with his head hanging over its edge. It is best to have the head of the table raised, so that the mouth of the patient is on a level with the physician's eye. This enables the physician to assume a comfortable position and facilitates his work. The laryngoscope is introduced, with the blades together and the handle upright, until the epiglot-

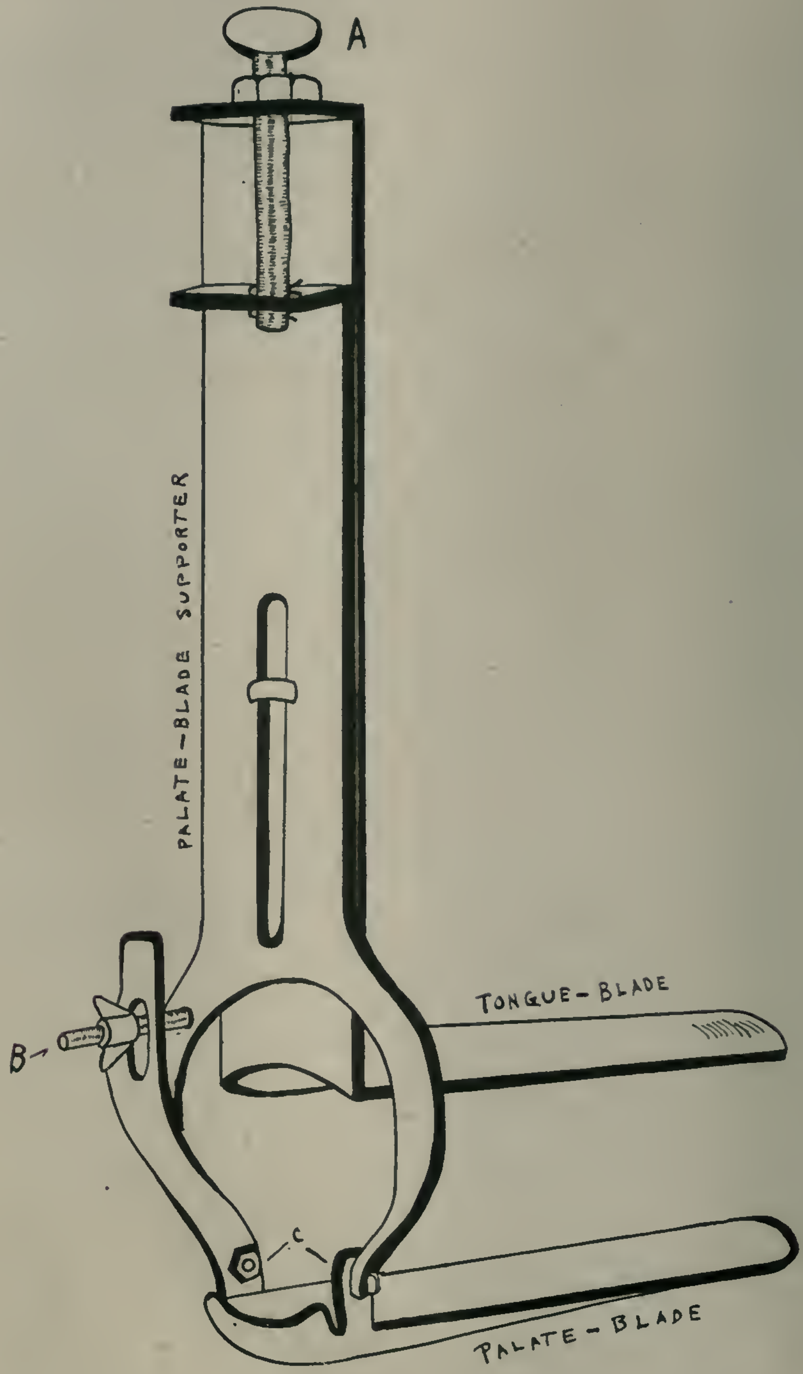

Figure 1.

tis comes into view. The tongue-blade is so manipulated that the epiglottis is caught between the blade and the tongue and is kept out of the field of vision. The arytenoids are then seen and the introduction of the instrument is continued until the proximal end of the palate-blade slips inside the teeth. The relation of the instrument to the anatomy will then be as illustrated in Figure 2.

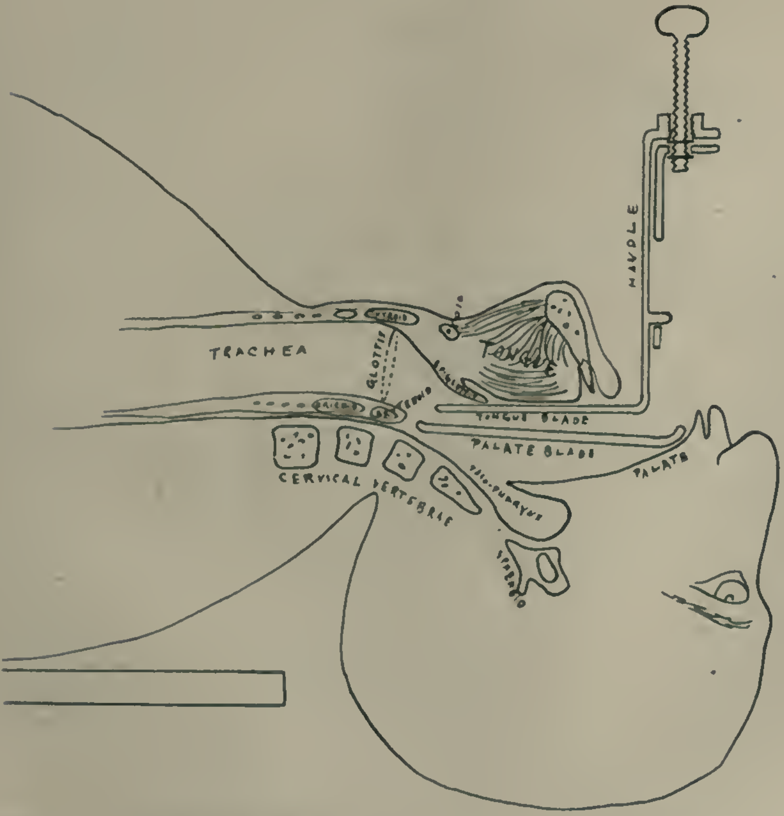

Figure 2. Diagram showing instrument in position with blades approximated and arytenoids in view

By turning the upper and lower screws, the blades will be pushed apart, the tongue and epiglottis will be forced into the submaxillary regions and the cords will come into view, as seen in Figure 3. Only enough force should be used in turning the screws to fix the instrument in position with moderate firmness. It can then be left without attention and the physician will have both hands free for his operations.

I have used this instrument on eight cases, six of them in Dr. Emil Mayer's clinic, service of Dr. Yankauer, at the Mount Sinai Hospital Dispensary, and two in Dr. Lapat's service at the New York Polyclinic. In all these cases I obtained a complete view of the larynx.

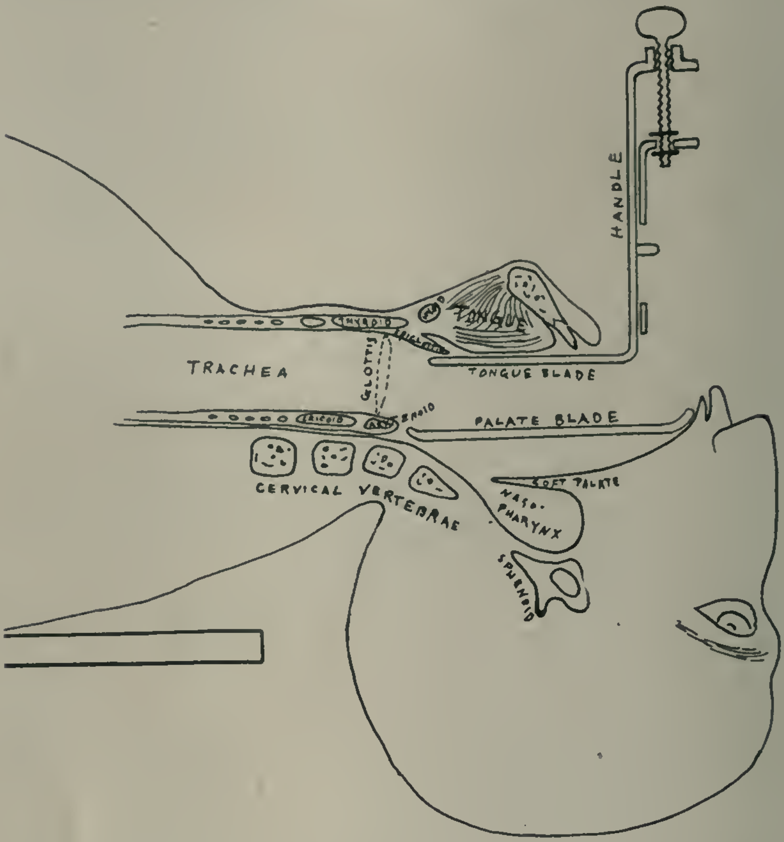

Figure 3. Diagram showing instrument in position with blades separated and cords in view.

In conclusion, I wish to make my acknowledgments to the above gentlemen and to Dr. McDonald, professor of anatomy in Fordham University Medical College.

1045 Fox Street.

SOCIETY PROCEEDINGS.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY,

Twentieth Annual Meeting, Atlantic City, June 19-20, 1914.

JOSEPH A. WHITE, Chairman.

SYMPOSIUM: STENOSIS OF THE ESOPHAGUS.

1. Anatomy, Anomalies, Instruments and Technic. DR. HARRIS P. MOSHER, Boston.

After discussing briefly the comparative anatomy of the esophagus, the essayist considered the esophagus in man under the following subheads: (1) Congenital anomalies, anatomy, structure, lymphatics, position, direction, diameter, length, distensibility, subphrenic portion, movements, appearance of normal esophagus; (2) physiology, function, peristaltic action, respiratory movements, innervation.

He then discussed the contra-indications to esophagoscopy—acute inflammation, as after the swallowing of corrosive fluids, and aneurysm of the aorta. The chief danger in passing the esophagoscope is rupture of the esophagus, which almost always results in infection of the posterior mediastinum and death. Such an accident can be easily avoided by the selection of a tube of the proper size and by adhering to the fundamental axiom of all esophageal examinations, namely, the examining tube must never be advanced unless the eye sees through the tube the open esophagus ahead. It should be remembered also that in old people the esophageal wall may be thin enough to rupture itself, so that smaller tubes and greater care in using them are necessary. It has developed of late years that there is considerable shock from manipulations carried out in the esophagus, more shock than is caused by working in the trachea and bronchi. Children bear esophageal examinations less well than do adults. In poorly nourished patients, particularly in those who are on the point of starvation from the presence of a stricture, it is better practice to open the stomach and feed the patient through a gastric fistula until his resistance has been restored, before attempting any prolonged examination.

The esophagus may be examined under local or general anesthesia, the author being strongly prejudiced in favor of general anesthesia, doing most of his esophageal work with ether.

The laryngologist, on beginning esophageal work, should supply himself with a full set of general and special instruments, the full list of which is given in the paper.

A general physical examination of the patient should be made before esophagostomy is attempted. An x-ray plate is indispensable before many examinations. It shows the location of metallic foreign bodies, pieces of bone, and buttons; it shows enlargements of the arch of the aorta and enlargement of the mediastinal glands, and, combined with the ingestion of bismuth, it shows the position of strictures, the size and location of diverticula, and the size of the dilated esophagus.

The technic of esophagoscopy under local and under general anesthesia is described in detail.

2. **Causes, Symptoms, Pathology, Diagnosis and Treatment.** DR. CHEVALIER JACKSON, Pittsburgh.

Stenoses of the esophagus may be classified as inflammatory, neoplastic, compressive, spastic and angio-neurotic.

The inflammatory stenoses may be edematous or cicatricial; the neoplastic, benign or malignant. The compressive may be due to malignant, benign or inflammatory, or peri-esophageal lesions, or to aneurysm or enlargement of the left auricle. Compression stenosis is also frequently caused by a pulsion diverticulum of the esophagus itself when the pouch is full of blood. Spastic stenoses are usually seen at the cricoidal level, due to spasmodic contraction of the inferior constrictors, especially the orbicular fiber, along with the adjacent orbicular fiber of the esophageal wall. The next most frequent spastic stenosis is at the hiatus, the contraction being due to the traction of the diaphragmatic musculature and the small bundles of fibers given off from the diaphragm and attached to the esophagus. Angio-neurotic edema producing severe stenosis of the esophagus has been observed by Arrowsmith.

The etiology varies with the character of the stenosis. Inflammatory stenoses are most frequently caused by swallowing corrosives, but they may be due to stasis of food halted by spasmodic stenosis. Other causes are the traumata of foreign bodies, the mixed infections associated with lues and with tuberculosis of the esophageal wall.

The cause of neoplastic stenoses, like that of neoplasms elsewhere, is unknown. Inflammatory processes and their end-results probably contribute to the etiology by affording a favorable soil.

Spastic stenoses may be local or general. Local stenosis is often the result of a "vicious circle" started by rapid eating, with its associated gulping of large boluses of poorly masticated food, followed by stasis of the food, inflammation and erosion, which, in turn, serve as a source of reflex excitement of more frequent and prolonged spasm, this inflammatory process being thus increased. The general causes of spastic stenosis are dependent upon some basic nerve-disorder, probably more functional than organic.

Pulsion diverticulum, as demonstrated by Killian, is chiefly caused by insufficient support of the esophageal wall between the fundiform and oblique fiber of the inferior constrictor.

Extensive consideration of the symptomatology is useless, inasmuch as any abnormal sensation whatever, referable to the esophagus, is an indication for esophagoscopy, by which, rather than by symptoms, the diagnosis is to be made. An otherwise altogether unaccountable cough, "globus hystericus," and the filling to overflowing of the pyriform sinuses with secretions, are some of the signs which may lead to the diagnosis of esophageal stenosis.

Radiography is of the greatest usefulness in demonstrating the size and extent of dilatation and diverticula, as well as assisting in making the diagnosis of their presence. Fluoroscopy affords very important aid by determining the functional activity of the esophagus during the act of swallowing. Taken alone, however, these means may lead to error.

The bougie, passed blindly, is of no use for diagnostic purposes. The differential diagnosis of lues, tuberculosis, and malignancy is made by exclusion and by biopsy. The other types of stenosis are diagnosticated by characteristic signs, which are detailed by the author.

Treatment should never be instituted while the patient is in the condition of water starvation. Enteroclysis or hypodermoclysis should be begun immediately. Immediate gastrostomy by the general surgeon, preferably under local anesthesia, should be performed when the patient has had little or no water for as much as four days.

Edematous inflammatory stenoses are best treated by having the patient swallow small doses of bismuth with a little calomel, both given dry on the tongue.

Cicatricial stenoses, in the author's experience, are best treated by filiform silk-woven bougies passed esophageally.

Benign and endo-esophageal growths are probably readily removable, though they are so rare that accurate data are lacking.

Malignant stenoses of the esophagus are regarded by general surgeons as inoperable. There is reason to hope, however, that, when early diagnosis is possible, transthoracic esophageal resection may be a justifiable procedure.

Spasmodic stenoses are best treated by divulsion. For this the author prefers a mechanical divulsor, such as that of Mosher, passed by sight through the esophagoscope.

The treatment of compressive stenoses obviously depends upon the nature of the compressive mass.

Pulsion diverticula, according to the consensus of opinion, steadily increase in size and severity of symptoms; consequently amputation of the sac by the surgeon, operating through the neck, is indicated. The operation with the esophagoscopic aid, devised by Dr. Otto C. Gaub, has been successfully employed by the author in two cases. This method is described and illustrated with three figures.

DISCUSSION.

DR. ROSS HALL SKILLERN recommended the "Schwebe" laryngoscope, which, with the suspension apparatus, gives a technic as simple as the passing of a naso-pharyngoscope into the nose. With the tongue-depressor and the apparatus for lifting up the larynx the pyriform sinuses and the upper part of the larynx could be shown completely, without lifting the cricoid cartilage entirely. The instrument was fitted with a double light. The tube was passed, as one would pass the naso-pharyngoscope, and slipped down below the cricoid cartilage. By comparing this with the other method, he had found it the simpler. He could see directly into the larynx. Children, as a rule, stood the esophagoscope badly, but under the "Schwebe" or suspension apparatus they would stand it for hours, or as long as necessary. He had had no child, thus far, to "go bad" with the "Schwebe" in position.

Dr. Sidney Yankauer recounted an experience with a stricture at the cardiac end of the stomach. The patient had suffered for many years from cardio-spasm, and many attempts had been made to dilate the cardia, all without the slightest effect upon the cardio-spasm. The man was unable to swallow other than liquid food, most of which came back into the mouth. He finally came into the hands of Dr. Willy Meyer, who, in the differential pressure chamber, opened the thorax, found the dilated portion of the esophagus, which he corrected by plicating, but without improvement. The patient was put in the chamber again and an operation similar to Mikulicz's pyloroplasty performed on the cardia through the chest wall. There resulted not the slightest improvement in the swallowing or in the cardio-spasm. Dr. Meyer then turned the patient over to him to see what could be accomplished with the esophagoscope. Upon putting in the instrument, the scar-tissue from the plications could be seen, forming ridges at the antero-lateral portion of the cardia; beyond this, a bend of the lumen was located at the cardia, which it was impossible to pass. The lumen of the cardia was merely a slit. Attempts to pass through this brought so much pressure to bear upon the sides of the esophagus that it was impossible to proceed. To pass and straighten out this tissue was a problem. He made for the purpose a wire probe which consisted of small joints, about a quarter of an inch long, so constructed that it would bend in one direction but could not return beyond a straight line. His idea was to use the curved part to go around the ridge to rotate the instrument and then to pass the straight part into the stomach. After several attempts he finally succeeded in straightening out the ridge and in passing a narrow tube beyond the ridge. He then saw what seemed to be a string coming out from the lumen of the cardia. It proved to be a silk suture from the cardio-plastic operation. Subsequently he found another stitch which he cut and removed. Following the removal of these two stitches the scar tissue softened up considerably, after which the gastroscope could be passed. After this the patient could swallow liquid food without difficulty, and some semi-solid food. He then passed the gastroscope and manipulated the head and shoulders in an effort to loosen up the cicatricial tissue. The patient's condition improved to such an extent that he could swallow gruels and semi-solid foods, but not solid food.

The case illustrated what can be accomplished by the exercise of patience and a certain amount of resourcefulness.

Dr. Samuel Iglauer described a procedure employed in the treatment of a case of complete obstruction of the esophagus following typhoid fever, occurring in a boy about 10 years of age. A gastrostomy had been performed, through which the patient had been fed for a number of years. In order to measure the thickness of the obstruction, an olive-tipped bougie was passed from the stomach into the esophagus and another was passed through the mouth and the distance between the two olives was determined by an x-ray picture. The olives were found to be sligthly overlapped and about one-sixteenth of an inch apart.

Esophagoscopy both from the oral and the stomach-end of the esophagus failed to reveal any fistulous tract through the obstruction. A few days later, working in conjunction with Dr. Murphy, of Cincinnati, an attempt was made to relieve the obstruction by an original method. An esophagoscope was introduced through the stomach-end of the esophagus and at the same time a second esophagoscope was introduced through the oral end. Both tubes were introduced as far as the obstruction, there being an observer for each instrument. When the light in one instrument was turned out the glow of the light in the other could at times be seen transilluminating the obstruction.

With an electro-cautery an attempt was then made to burn through the transiluminated diaphragm from above. The cautery was followed by a slender bougie which apparently passed through, but digital examination showed the bougie under the mucous membrane in the stomach. The bougie had evidently dissected up the mucosa of the esophagus and passed down into the stomach wall. After a few days the patient was removed from the hospital, contrary to advice. While on the train on his way home he began to swallow naturally and this continued up to the time of his death, which occurred about three weeks after the operation. Evidently the lumen of the esophagus had been restored and if the procedure outlined above were followed more cautiously it would prove more successful.

Dr. George F. Cott added a third condition to the two mentioned by Dr. Mosher in which the esophagoscope could not or should not be passed. He cited a case in which the patient could not swallow, and in whom, under ether, the esophagoscope could not be passed after strenuous efforts for some time. Upon further investigation it was discovered that there was ankylosis of the cervical vertebrae from syphilis.

Dr. G. Hudson-Makuen asked if Coley's fluid (mixed toxins of bacillus prodigiosus and streptococcus erysipelatosus) had been tried in malignant disease of the esophagus. Many cases of marvelous cures have been reported, not only by Coley himself, but by other distinguished surgeons in this country and abroad, and it would seem that, unless there were some contra-indication against its use, it might prove to be quite as efficient, if not more so, than any of the other methods which have been suggested, not excluding radium. He had had the pleasure recently of talking with Dr. Coley about the preparation of the "fluid," and about its use—a work in which he has been engaged for more than twenty years—and he was encouraged to hope that it might be useful in the class of cases under discussion. He would be glad to hear the opinion of the essayists on the subject.

Dr. Robert Levy said that the sign of which Dr. Jackson had spoken—the accumulation of secretion in the pyriform sinus had been observed by him in cases of tuberculosis with painful deglutition. He had seen cases in which these sinuses were completely filled.

Dr. R. H. Craig suggested the use of the high frequency fulguration-spark in the treatment of inoperable cases of this nature. He cited a case in which the pain absolutely disappeared and the growth was greatly reduced. The patient, however, died six months later. In another case of malignant disease involving the sphenoid and the naso-pharynx, after a month's treatment this disappeared and the growth was much reduced in size. He believes the high frequency fulguration-spark is of great value in alleviating pain and diminishing the growth in these desperate cases. Where the growth is accessible carbon dioxid snow may be useful.

Dr. Joseph C. Beck asked Dr. Jackson if he had employed the Abderhalden test for carcinoma. He also asked Dr. Jackson to specify, in closing the discussion, what he meant by "small quantities" of radium. He had employed nineteen milligrams of the salt or ten milligrams of the pure radium element.

Dr. Mosher, in closing the discussion, said Dr. Skillern's remarks interested him. He had tried the procedure of suspension esophagoscopy and had found it satisfactory in the examination of the upper part of the esophagus. He had not had the trouble with the breathing which Dr. Skillern mentioned; in fact, he had been astonished to see how little trouble he had had in this regard. Referring to Dr. Iglauer's case, he said he had reported a case three or four years ago where the same procedure was used. It was a case of absolute stenosis of the esophagus, and he attacked it from above and below. The procedure which helped was that of picking the stricture apart, ballooning, and picking it apart again. In his experience, perforating the esophagus led to fatal mediastinitis.

Dr. Jackson, in closing the discussion, said Dr. Mosher was the highest authority on the anatomy of the esophagus. Dr. Jackson believed that all the early esophagoscopists and many of to-day mistook the hiatal constriction for the cardia. The question of anesthesia was a matter of personal equation. Every man should select the instruments which suit his needs best, and so it is with anesthesia. The method should be selected which suits the operator's needs in the particular case. Personally the speaker had been very much interested in the case reported by Dr. Yankauer. He thought the work of Dr. Yankauer and Dr. Meyer would open a new field. The procedure mentioned by Dr. Iglauer was exceedingly interesting, and while it was a failure in the case cited, it was justifiable in absolutely impervious strictures, and offered hope of success. In cooperating with Dr. Brenneman he had passed a tube to serve as a staff upon which Dr. Brenneman cut the occluding cicatrix from below the externally opened stomach. Such procedures were, of course, indicated only in impermeable occlusion. If any lumen existed, however small, it could be cured by the safer endoscopic methods. Dr. Cott's point was well taken.

Answering Dr. Goldstein's question concerning recurrence of spasmodic stenosis the speaker cited a case of spasmodic stenosis, in which he absolutely failed. He stretched the abdominal esophagus so completely that he could see into the stomach, and yet recurrence took place. This was, however, his only failure so far. The patient became discouraged and finally gave up treatment.

Referring to Dr. Makuen's remarks concerning Coley's fluid, he said the method was applicable to sarcoma, and that it was in this disease that radium also gave best results, carcinoma being less amenable. Both methods could be used in the same patient. He suggested that in the cases of filling of the pyriform sinuses by secretions, mentioned by Dr. Levy, there might possibly be spasm in the crico-pharyngeal muscle causing temporary stenosis with resultant filling of the pyriform sinuses, or, in other instances, a disinclination to swallow because of the odynophagia which might exist. Or, in still other instances, an actual organic esophageal stenosis due to tuberculous infiltration of the "party wall" might be present. Nevertheless, Dr. Levy's point was well taken. Dr. Jackson hoped that fulguration and carbon dioxid snow would be thoroughly tried out, but he had had no experience with either. He had not employed the Abderhalden test, as suggested by Dr. Beck, but all diagnostic methods should be used. With reference to the dosage of radium, he said a small dose, such as ten milligrams, acts as an irritant, because it cannot be left long enough in the esophagus. A hundred milligrams left in for an hour or more was usually required: He did not speak as an authority; he depended upon Dr. W. H. Cameron and Dr. William Proescher for dosage and duration of the radium application in each particular case.

Suspension Laryngoscope in Children. DR. ROBERT LEVY, Denver.

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DISCUSSION.

DR. SIDNEY YANKAUER agreed with all Dr. Levy said concerning suspension laryngoscopy. He has performed a number of operations with this apparatus, one of which he reported before the Eastern Section of this Society. After several operations by the general surgeons, the patient's neck was so scarred that the lumen of the larynx was so small that he could hardly get a probe through. The arytenoids were so adherent to the epiglottis that by the ordinary direct methods the lumen could not be seen, but with suspension laryngoscopy this could be accomplished. The passage of the first probe was followed by a larger, and finally he could pass a uterine dilator. By means of the uterine dilator he could stretch the larynx sufficiently to get a rubber tube in, which was left *in situ* for two weeks, when a larger one was used. It was thus possible, finally, to introduce the intubation tube. The boy is now going about, and has been wearing the intubation tube for about four months. The suspension laryngoscope had been modified by Killian himself as well as by others. The new model which Killian has brought out does not appear as useful as the original model. He has not been able to bring the anterior commissure into view with the new device.

DR. SAMUEL IGLAUER was interested in Dr. Levy's remarks, and agreed with practically every point. While it is true that the procedure is less difficult in children, it can be carried out satisfactorily in adults. In bringing the anterior commissure into view, one should use counterpressure with Albrecht's instrument, or the finger. Killian recommends a dose of codein preliminary to the anesthetic, in children. He has frequently followed this suggestion. Atropin should be used with ether in order to dry up the secretions.

He has tried tonsil removal under suspension, but thinks the Beck method far superior and much simpler than that of Killian. Referring to the removal of a broken safety-pin from the larynx of the child, 5 years of age, he really did not completely suspend the patient. He introduced the spatula and while supporting the spatula (and thus the patient's head) with his left hand, he could see the foreign body and remove it immediately with the forceps in his right hand. He has recently introduced radium into the larynx in the treatment of a papilloma in a young child. In another infant radium was applied to the outside of the larynx. He does not know the dosage because he did not own the radium.

Dr. Thomas J. Harris confirmed what Dr. Levy had said with reference to the simplicity of the method in children and the wonderful view of the larynx obtained in the average case. He referred briefly to a case in which he applied radium in a child, 6 years of age, using the suspension apparatus, with rectal anesthesia, one hundred milligrams of radium, of one million activity, being applied for twenty minutes. The first time he attempted to apply the radium, without the suspension apparatus, he thought it went into the esophagus instead of into the larynx. When the apparatus was emloyed it was very much easier to see the papilloma and to make the application of radium. He recommended the use of rectal anesthesia in these cases.

Dr. Levy, in closing the discussion, said that he had not found the report of Dr. Yankauer's case in his search for all cases to date in which suspension laryngoscopy had been employed in children. He thought the old Killian method of suspension apparatus better in children, but in adults he liked the Albrecht or Howorth modification. He had used cocain in adults, but in children he used general anesthesia. Morphin and hyoscin in cases in which a large percentage of cocain did not seem to abolish the laryngeal reflex were useful in adults. He has never been able to see why adrenalin was added to the cocain, inasmuch as it is not an anesthetic and as there is very little loss of blood in these cases. In some cases of children with chloroform anesthesia, the adductors contracted, the vocal bands came together, and the spasm of the larynx continued for some time. In such cases a dilute solution of cocain was of advantage.

The Clinical Significance of Bacteremia. Dr. John E. Sheppard, Brooklyn.

Four cases are reported, which seemed to the author to be fairly illustrative of a considerable series of cases encountered at the Jewish Hospital in Brooklyn. The four cases and others of the group from which these were selected, would appear to demonstrate that not all cases of otitic bacteremia need operation. To distinguish between cases which do and those which do not require operation calls for one's closest observation and best judgment.

As aids, all too meager at times it is true, in coming to a conclusion as to whether or not to operate, the author suggests the following points: (1) The general condition and appearance of the patient. Is there a markedly septic condition? Is it increasing or decreasing? As of the greatest aid in determining this, (2) The temperature curve. (3) Whether the process is localizing or tending to become general. (4) Blood counts, frequent enough to keep a careful line on the patient's resisting power. (5) Blood cultures, sufficiently often to have a definite knowledge of the persistence of the organism in the blood, and whether the number of colonies per cubic centimeter is increasing or diminishing, thus showing whether or not the patient is in need of assistance in taking care of the bacteremia.

DISCUSSION.

Dr. Arthur B. Duel thought the interesting reports of Dr. Sheppard served to emphasize certain principles in infectious processes which were of great clinical importance. It must be evident that in all infections the general clinical symptoms usually noted are the result of the action of bacteria or their products which have been poured into the circulation. When the general clinical manifestations are slight, the infecting focus is confined to an unfavorable locality for getting into the circulation, or the invading organism is slightly virulent. Thus, a follicular tonsillitis of streptococcic origin will produce much more violent manifestations than a streptococcic otitis or mastoiditis. Similarly, a staphylococcic follicular tonsillitis, being in a favorable field for pouring its products into the circulation, may cause considerable general upset (though comparatively less than its more virulent cousins), while, confined to a bony cavity, it may cause hardly enough disturbance to be recognized. Whatever manifestation there may be, however, is undoubtedly caused by the bacterial invasion of the circulation. It may be asked, then, why bacteremia is not always demonstrable in suppurative conditions. The answer is two-fold. In the first place, the methods of examination are not sufficiently delicate; in the second place, most of the organisms are destroyed almost immediately by the blood cells. Only a few of the most virulent type are able to live and multiply in the circulation.

Is a demonstrated bacteremia, then, of no value as an operative indication? Of course it may be of the greatest value. In a case, for example, in which bacteremia is demonstrated, where the blood count shows a low resistance, and where the patient is doing badly, the obvious thing to do is to localize the process—to cut off the blood stream at that point without regard to whether or not there is a demonstrable disintegrating clot. In fact, in his opinion, to look upon bacteremia alone in suppurative otitis or mastoiditis as indicative of septic sinus thrombosis is unwarranted. The bacteremia always precedes the clot-formation—indeed, the alteration of the vessel wall by bacterial invasion is essential to the formation of the clot. At this stage it may not be always demonstrable by present methods, but theoretically it is present, and if methods of investigation were nice enough, it might possibly be demonstrated a day before, or, perhaps, a week before, a recognizable clot has formed.

Of course, after the clot has formed and has begun to disintegrate, the chance of demonstrating a bacteremia is much greater, because the infecting focus is in the most favorable situation for the constant discharge of large numbers of organisms into the circulation. Yet, with a patient doing badly, one might feel quite justified in isolating the infecting area, whether bacteremia could or could not be shown. On the other hand, with the patient doing very well, the demonstration of a bacteremia might not necessarily demand an operation. Hundreds, of course, recover every year without it having been thought necessary to demonstrate the bacteremia, which is undoubtedly present. One should carefully avoid taking too narrow a view of the clinical significance of bacteremia.

Dr. Charles W. Richardson considered the demonstration of bacteremia an important point in the history of all cases of probable sinus infection.

Whether a positive bacteremia is always indicative of sinus thrombosis is a question still subject to considerable dispute. In cases on the borderline, as it were, the condition of the blood is of much value to the clinician, and should be of great assistance in deciding whether operative intervention is demanded. Without clear and definite indications from a clinical point of view there is no doubt that many would be loath to go into the sinus, although the experiences of Grünings and others seem to demonstrate that in cases of simple bacteremia, without very pronounced clinical symptoms, there may be sinus thrombosis. How far one would be warranted, with the evidence of bacteremia and without clinical evidences of sinus thrombosis, in delaying operative intervention is a question. With bacteremia, even without clinical evidence, he would be loath to delay. Dr. Sheppard's cases were almost negative, in a certain sense, especially his non-operative cases, in which he was fortunate, in that they recovered without operative intervention.

Dr. Seymour Oppenheimer was under the impression that Dr. Duel and his confreres at the Manhattan Eye and Ear Hospital were no longer at variance with Dr. Libman and Dr. Celler and others at the Mount Sinai Hospital, with reference to this question of bacteremia. At Mount Sinai it was held that acute otitis *per se* never caused bacteremia, and these views had been corroborated by the clinical findings. This difference of opinion was thought to be largely a matter of variance in laboratory technic, the fact that the Manhattan Eye and Ear Hospital reached different conclusions being considered at Mount Sinai to be due to some error in laboratory technic. He and his associates at the latter institution had not changed their view-point at all, being still of the opinion that suppurative otitis *per se* does not cause bacteremia. They were also of the opinion that demonstrable bacteremia is a clinical expression of sinus thrombosis. Up to the present time, they had from ninety to ninety-five cases of sinus thrombosis in which bacteremia had been demonstrated in advance of operation, and in not one case had the operation failed to demonstrate sinus thrombosis. It was a curious fact that if they were wrong in their deductions, they were able to demonstrate conclusively, a few hours after operation, that the blood culture became sterile, showing that the operative procedure must have attacked some local focus which was responsible for the infection. In two hours, in some instances, the blood had become sterile. In some cases the blood culture still remained positive, but there were other explanations, such as vegetations on the heart valves secondary to the initial infection.

Dr. S. MacCuen Smith asked Dr. Oppenheimer whether he depended upon the blood cultures for indications for operation, or whether he was guided by other symptoms of the disease.

Dr. William B. Chamberlain said he understood Dr. Sheppard to say that he opened the lateral sinus but made no mention of ligating the jugular. He could see no reason, under the circumstances, for not immediately ligating the jugular.

Dr. Ewing W. Day called attention to one point that seemed to have been overlooked. There is a tendency to take for granted that every lateral sinus patient, unless operated upon, dies. If a patient with thrombosis gets well it is no indication that the sinus is not blocked. He has had cases in which the sinus was completely obliterated by clot, and he can not say that if the patient gets well there is no clot.

Dr. Oppenheimer, continuing the discussion, in answer to Dr. Smith's question, said that he had been particularly cautious, by reason of these controversies, not to be too enthusiastic. Many cases had been admitted to the hospital with but fewest of otitic symptoms, with suggestions of typhoid fever possibly, with no symptoms of mastoiditis, but with a positive blood culture. He had been extremely cautious in saying that he was dealing with infectious phlebitis, and had deferred operating until all other possible causes had been ruled out. Invariably they had found a thrombotic condition in the sinus.

Answering a question by Dr. George L. Richards as to whether all his ninety or ninety-five cases were operated upon, he said they were.

Dr. Wendell C. Phillips verified Dr. Day's statements. He had been struck, years ago, in operative surgery on the ear, to find occasionally an obliterated sinus from an old sinus thrombosis.

Dr. John A. Thompson recalled having treated a brother laryngologist for suppurative ethmoiditis. He developed an abscess in the big toe which was opened under antiseptic precautions, and examination of the pus revealed the presence of streptococci. The nasal sinuses are sometimes at fault in bacteremia.

Dr. Sheppard, in closing the discussion, said he simply reported four cases as a part of a group of cases of bacteremia, many of the group being cases which had been operated upon. Regarding the tying of the jugular, he had rather settled down to the rules of not tying it if there is a reasonably good return-flow from the bulb. Should there be no return flow he waited a day or two and then tied off the jugular. It was probably true, as Dr. Richardson suggested, that he was fortunate in not having bad results. Possibly more than simple good fortune is indicated by the fact that the cases referred to were selected from perhaps fifty or more cases of bacteremia, of which he had kept careful records, and of which twenty-five at least had not been operated upon. Dr. Thompson referred to other sources of bacteremia. This fact needs to be kept in mind. He very decidedly does not advocate operating upon all cases of bacteremia. Dr. Oppenheimer spoke of his cases as being cases of suppurative otitis. Three of the cases reported in the paper were non-suppurative otitis. He questions the necessity of operating upon all these cases if they are properly watched, especially if in conjunction with a practical bacteriologist. He thinks that more extensive observations would ultimately teach in which cases to operate and in which surgical intervention is not necessary.

Treatment of Purulent Cerebrospinal Meningitis. Dr. William Sohier Bryant, New York. The object of this communication is to apply the experience of an unusually successful case to the management of this infection.

The treatment of purulent septic meningitis consists of (1) treatment for relief of the intra-cranial pressure; (2) treatment of the toxemia; (3) treatment of the focal infection. The goal of the treatment is the control of intra-cranial pressure and toxemia, and the treatment should, therefore, be symptomatically directed against these two means of fatal terminations of the disease.

The following case, showing recovery from purulent streptococcic cerebrospinal meningitis, was offered: The patient, male, 22 years of age, had symptoms of rapidly increasing coma, neuro-muscular signs of meningitis, rigidity of neck, choked discs, and purulent otitis media and mastoiditis. Temperature, 102.5°; pulse, 40. Spinal fluid contained cocci in pairs and short chains, and pus. Decompression at once removed the mental symptoms. Mastoid operation, hypodermoclysis, enemata, saline solution by mouth, and solution of magnesium sylphate by mouth. On the seventh day following decompression, all signs of meningitis had disappeared. Patient died 188 days after the decompression operation, from toxemia caused by the repeated secondary infection of the decompression wound.

From this case the following conclusions are reached: "The combination of our experiences as otologists with the experience of the obstetrician makes the outlook for successful treatment of streptococcic meningitis appear much brighter than it has previously appeared. Oto-laryngologists should get as good results in cerebrospinal meningitis as the obstetrician obtains with puerperal sepsis cases. Although the surgeon can readily protect the patient from death by intra-cranial pressure, the management of the sepsis is quite another problem. This problem of sepsis has received more attention from the obstetrician than from any other medical group or specialty. The treatment should be focused on decompression, local and systemic drainage, administration of magnesium sulphate, and stimulating general hygiene."

Observation of Nystagmus Through the Closed Eyelids. Dr. Edmund Prince Fowler, New York City.

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DISCUSSION.

Dr. Arthur B. Duel thought Dr. Fowler had presented a very ingenious method of making permanent records of occular phenomena in vestibular nystagmus. He did not think such observations necessary to diagnosis, but when the apparatus was perfected the records, for those who understood them, would be useful in reporting cases. The tracings of nystagmus would leave no doubt of its presence. When one must depend upon the house-staff to report cases that arrived during one's absence, these tracings could be made and put into the records for subsequent study.

Dr. Fowler, in closing the discussion, said patients did not notice as much vertigo with rotation or following caloric reactions with the eyelids closed as they did with them open. For instance, one could produce nystagmic movements of the eyes with caloric stimulations and stop before the vertigo came on. Irrigation usually makes patients deathly ill and it surely is a great advantage to be able to avoid this annoying feature of the labyrinth tests. In many neurasthenics the rotation tests show nothing on account of the incessant blinking and rolling of the eyes around and about. If the lids are closed some approximation of the duration of the nystagmus may be ascertained.

SYMPOSIUM.

AURAL COMPLICATIONS OF THE EXANTHEMATA.

1. **Etiology, Diagnosis and Treatment.** Dr. Charles R. C. Borden, Boston.

Published in full in the September issue of The Laryngoscope, *p. 773.*

2. **The Etiology, Diagnosis and Treatment of the Aural Complications of the Exanthemata.** Dr. Stanton A. Friedberg, Chicago.

Published in full in the September, 1914, issue of The Laryngoscope, *p. 783.*

DISCUSSION.

Dr. Henry O. Reik considered the papers of Dr. Borden and Dr. Friedberg as two of the most important presented before the society for some time. He congratulated the authors upon the very complete manner in which they covered the subject, the complete way in which they had digested the various facts, and the conclusions which they had brought out. He thought the matter might well be brought more closely to the attention of the general physician, and he hoped each author would take it upon himself to force it home to those who have charge of infectious disease hospitals. Dr. Friedberg had called attention to the importance of this in referring to the frequency with which aural infection takes place in infectious diseases. Dr. Reik had recently observed, in one large hospital in which four hundred beds were allotted to diphtheria and scarlet fever, that practically no attention was paid to the middle ear. Tympanotomy was rarely performed, and the ears rarely examined, the attendant waiting until the child complained of pain. Practically one-third of all the cases had spontaneous perforation and otorrhea, and a large percentage of these went out of the hospital with discharging ears. The number of complications which resulted could not be estimated in figures.

In a similar hospital in Baltimore the same conditions pertained in 1912. With the advent of a new superintendent in 1913 the situation was changed. An otoscopic examination was made in every case admitted, and three examinations daily after admission, one in the morning, one at four o'clock, and one at night. Thirty-seven patients had developed some indication of otitis media. The examiner was very keen to observe this condition, and if there were any doubt as to the need of paracentesis he would operate. Each one of the thirty-seven had tympanotomy, and each child was dismissed with dry ears. In 191 cases of scarlet fever every patient went out without otorrhea. That showed what could be done with careful observation and examination.

Dr. Borden referred to mastoiditis without tenderness. The speaker called attention, in this connection, to the fact that there is an instrument for measuring the presence and amount of tenderness, or rather the amount of pressure necessary to elicit tenderness, which is much more accurate than measuring it with the thumb and finger. This algesiometer is a very simple device consisting of a rod working in a cylinder, with a spring arrangement for measuring grams of pressure. This apparatus can be placed directly over the antrum or over the tip cells. With this instrument it is often possible to elicit tenderness which the thumb and finger do not detect.

Dr. Joseph C. Beck said he stayed away from these cases as much as possible. In Cook County Hospital, in Chicago, this class of patients are greatly neglected because men who were able to take proper care of them do not like to treat them. This is because of the danger of carrying the infection. He has had this experience in his own family, infecting his own child after treating a hospital patient. He can say definitely that there was no other exposure in this case.

Every large hospital should have a contagious ward, in charge of physicians and nurses specifically trained for these diseases. Attending physicians should be called only when absolutely necessary. Another point to which he wished to refer is the matter of operating upon the naso-pharynx and tonsil while the patient is still in the hospital. He has seen a large group of cases operated upon with excellent results, particularly with reference to recovery from the nephritis which is going on without typical findings in the urine or other manifestations elsewhere in the body. In a large hospital where operations can be performed under the most advantageous circumstances, especially with reference to the anesthetic, very satisfactory results can be obtained. The open method of anesthesia is a distinct advance. With reference to post-mortem changes in the ear, Bezold's latest statistics showed that these changes are post-mortem, unless the autopsy is very promptly made.

Dr. J. S. Kirkendall asked Dr. Borden how he dared to give one of these patients ether after kidney complications.

Dr. William B. Chamberlin considered the papers presented by Dr. Borden and Dr. Friedberg very important. He mentioned a case of aural complications of scarlet fever which had come under his observation during the winter. The patient was a man, 35 years of age, whose drum membrane had ruptured spontaneously without premonitory symptoms. He was still in bed, the scarlet fever infection having almost spent itself. There was still a profuse discharge from the ear, but no signs of mastoiditis. One morning the nurse noticed a swelling behind the ear. He operated, finding the most extensive mastoid process he had ever seen; every cell was filled with pus and granulation-tissue. He called attention to the value of the x-ray in making a diagnosis in the class of cases under discussion. Dr. Ingersoll and he, at the Lakeside Hospital, had x-ray examinations made in all cases. In chronic cases he did not rely so much upon it, but in acute cases it was of the greatest value. In questionable cases he thought the simple mastoid operation would do no harm, if there proved to be no mastoid involvement, and was attended with little danger. Should there be mastoid involvement, failure to operate would do great harm.

Dr. A. P. Voislawsky asked if the essayists were able to stop the aural discharge. He had had a great deal of trouble in having to keep children week after week on account of his inability to check the otorrhea.

Dr. George M. Coates referred to the value of vaccine therapy in the management of the conditions under discussion. He called attention to a report of McKernon, made to the society in 1910, in which he stated that by the use of autogenous vaccines in cases of mastoiditis following measles and scarlet fever upon which he had operated, the time for wound-healing, which is usually much prolonged in these cases, was reduced to the nomal. A report of Weston and Kolmer, in 1911, shows the results of one hundred cases of suppurative otitis media (scarlatinal) treated with autogenous vaccine. Their work was done in the Philadelphia Hospital for Contagious Diseases. Under old methods of treatment, according to the histories of many hundreds of cases, it was found that the percentage of dry ears obtained under thirty days was only 7.46. With tho use of bacterins this was increased to 22.9, which is a considerable gain and a fair index of the value of bacterins in this class of cases. Undoubtedly more dependence will be placed on this method in the future.

Dr. Dunbar Roy agreed with Dr. Borden with reference to the irrigation of the nasal chambers in exanthematous conditions, believing that it produced more irritation and gave rise to more possibility of infection of the middle ear than if left alone. In the later stages, when the discharge was very thick and muco-purulent secretion came from the lateral sinuses, it was sometimes pitiful to see young children trying to get air through the nasal passages. As long as the secretion existed it rendered them more liable to infection of the middle ear. In such cases he used a small rubber tube with a bulb at one end. By inserting the free end of the tube into the nasal passage of one side and blowing air through it he found it possible to blow through the opposite side large quantities of secretion. The secretion was thus prevented from going up into the Eustachian tube. The child was rendered much more comfortable by clearing out the nasal chambers in this way.

Dr. H. Holbrook Curtis said it would be better to suck the secretion out than to blow it up in the manner described by Dr. Roy.

Dr. Talbot R. Chambers spoke favorably of the Yankauer nasal speculum, through which he had relieved the discharge in a number of cases of Eustachian catarrh, by means of iodin applications.

Dr. Norval H. Pierce emphasized the importance of early paracentesis in these cases. It was absolutely necessary to resort to paracentesis early in order to prevent mastoid bone complications. If one remembers the anatomy of the regions involved,—the aditus, the cavum, the pneumatic spaces, all communicating by minute tubes with the antrum, it will be easy to see that paracentesis can prevent involvement of the mastoid bone only when done early. At the very inception of otitis media the infection spread immediately down these tubes, and unless the paracentesis be done at a point in the course of the disease before the mucosa of the tubes swells, one will be unable to draw off the infectious material by capillary drain or otherwise, and it will dam up in the pneumatic spaces. The muco-periosteum, as is well known, has the power of swelling enormously, no other tissue in the body having this power to an equal extent, nor of exercising it so suddenly. In twenty-four hours it can swell sufficiently to fill a large pneumatic space. Paracentesis, therefore, does most good when performed early. It is the retention of discharge and the swelling of the muco-periosteum that produces decalcification of the bone and consequent mastoid involvement.

Dr. Thomas J. Harris thought this symposium one of the most important that had come before the society in many years. He regretted that the general practitioner could not have joined in the discussion. He asked the essayists, in closing the discussion, to speak particularly of the prevention of the complete destruction of hearing following the exanthemata. Milligan, of Manchester, had advocated the mastoid operation of post-auricular drainage in these cases.

Dr. Francis P. Emerson advocated frequent inspection and, if in doubt, incision of the drum. He cited a case in which the patient, when first seen, had no other symptom than fever. He decided to wait, and four hours later the drum ruptured spontaneously.

Dr. Friedberg, in closing the discussion, maintained that the majority of acute otitis cases would recover if properly handled. The result depended largely, as Dr. Borden had said, upon the virulence of the infection and the vitality of the patient, but ordinarily the percentage of recoveries was large. In the series reported there were two cases out of thirty-five dismissed from the hospital with discharging ears. This showed what could be done by proper attention.

The Operative Treatment of Meningitis. Supplementary Report and Analysis of Cases. Dr. Samuel Kopetzky, New York City.

Published in full in the August, 1914, issue of The Laryngoscope, *p. 733.*

DISCUSSION.

Dr. Ewing W. Day thought the only thing that had been accomplished so far by the work under discussion was to overthrow some of the existing theories. Cushing's theory to the effect that death is caused by pressure and that if the pressure is eliminated the disease can be overcome has been entirely overthrown. The cerebral circulation is not sufficiently well known for one to understand the matter. The work of Leonard Hill, of London, on the circulation is important in this connection. The easiest and most direct tract is through and down the posterior part of the brain. The place where the maximum amount of pus is found in all his post-mortems is back of the optic chiasm in the region of the cistern of the chiasm. He has thought that there are probably some places were the circulation is very sluggish, and that around the cisterna, back of the chiasm, where it supports the medulla, the circulation probably moves considerably more slowly than it does in other portions of the brain. It is in such places that pus is found in quantities sufficient to amount to an abscess. It seems to be demonstrated that the space in front of the medulla can not be drained. That seems not to be affected by drainage. He believes that Dr. Kopetzky is right when he says that there is sepsis going on in all cases of meningitis. Almost all the cases, following drainage, run a markedly septic course, with daily variations in the temperature, ranging from normal to 104°. In one case sinus thrombosis was suspected and the sinus was opened with negative results. In some cases the disease ran a typical septic course, the patient going off into coma, as in advanced typhoid, with muscular relaxation, loss of control of sphincters, dilation of the pupils, and gradually going off into death. This was not the course in all instances, but in the majority.

Referring to the case cited in Dr. Bryant's paper, in which streptococcus serum was used, the speaker said all the symptoms of meningitis were present, yet the patient recovered. He did not believe the treatment had any effect in producing a cure—he thought Nature did it. He does not believe there is any known agent or method which will cure an active meningitis.

DISCUSSION.

Dr. Francis P. Emerson emphasized the fact that two principles are to be observed in the surgical relief of any septic affection: 1. The establishment of adequate drainage. 2. The removal, as far as possible, of the diseased focal areas. The second problem in the surgical treatment of meningitis was impossible. With regard to the first, it was important to establish drainage early in the course of the disease, before the toxemia and sepsis have lowered the vitality of the patient. Theoretically it might be better to relieve the pressure by reversing the lymph current. He thought a study of the autopsy-findings would cause one to hesitate about operating upon any case, especially those similar to the admirable group which Dr. Day presented last year before this society.

Some cases have recovered without surgical intervention and others have been cured by operative treatment. In the former class of cases the cerebro-spinal fluid was sterile. The question of diagnosis with refence to deciding whether or not to operate is important. The symptoms which lead to the clinical diagnosis of meningitis do not indicate whether one as to deal with a circumscribed or a diffuse meningitis. Even should an active organism be found in the cerebro-spinal fluid it would be necessary to cultivate it before a decision could be reached as to its virulency. Dr. Kopetzky's work, therefore, is important in stimulating renewed interest in the subject, that there may be more exact data for operative interference. His personal feeling, however, is that, so far as relief from surgery is concerned, sufficient advance has not been made in securing such data and the results from surgery have not been sufficiently satisfactory to warrant the advocacy of any particular line of operative intervention.

Dr. J. S. Kirkendall had been interested recently in the report of a case from a young physician in Ithaca who is well versed in pediatrics. Dr. W. L. Van Pelt told him that a young child had tuberculous meningitis soon after its birth, its weight being only nine pounds. He gave this infant twenty-five grains of urotropin daily and the child recovered.

Dr. Wendell C. Phillips was interested in the case mentioned by Dr. Kirkendall, and asked if the cerebro-spinal fluid was examined.

In Dr. Bryant's paper, descriptive of a case of purulent meningitis, the essayist had mentioned that the patient had a pulse-rate of forty. A pulse-rate of forty, has never been observed by Dr. Phillips in an uncomplicated case of purulent meningitis.

Dr. Joseph C. Beck has always understood that the pneumococcus was the least virulent of the organisms found in meningitis, and thinks that in his case of meningitis which recovered this organism was present.

He has been working along this line for a number of years and has had two cases within the last year in which he operated by the Haynes method. Both patients died, but he learned a good deal from them. In one case of cerebro-spinal meningitis he gave urotropin, in doses of 180 grains a day, then withdrew 10 cc. of blood and allowed it to settle to form a serum, which he drew off, centrifuged it and injected 4 cc. intraspinally, as suggested by Swift and Ellis, with salvarsan in syphilis. The result was that he had a very irritable patient, with a very clear mind, tor three days, but the man died just the same. In another case he used collargol intravenously. There was a distinct change in the fundus of the eye in the form of a pigmentation.

Dr. Day said he was asked by one of the surgeons why he did not drain the space in front of the medulla. He did that in one case, placing the drain underneath the dura, passing it up to the cisterna, back of the chiasm, in front of the medulla. The patient went on to death just the same. He had to go inside the dura, and the cerebellum was crowded up, cutting off the drainage. The only other possibility was to put in a lead tube.

Dr. Thomas J. Harris said Dr. Bryant had closed his paper by expressing hope for the class of cases under discussion, and yet cited only one case in which there was recovery. From a careful study of the literature it was the speaker's opinion that many such cases have been reported. One should be encouraged by well-authenticated cases which recover. One or two cases have been reported in New York which, he felt perfectly sure, were cured. The Germans made their diagnosis upon the findings in the cerebro-spinal fluid, pronouncing the case one of meningitis when the meningococcus was found in the fluid. One German clinic had reported forty cases of cured recurrent meningitis. This should be encouraging to all who are working along these lines.

Dr. Samuel Iglauer called attention to the importance of some experimental work on the circulation of the cerebro-spinal fluid which Dr. Kramer, of Cincinnati, has been doing. This may readily explain the failure of the Haynes operation to provide adequate drainage in otitic meningitis. According to Kramer, circulation of the cerebro-spinal fluid below the tentorium is separate and distinct from that above the tentorium. If this be true, then drainage through the cisterna magna will fail to relieve the areas commonly involved in otitic meningitis. Kramer has also shown that methylene blue injected in the lumbar region of animals will enter a small pore in the lower portion of the spinal cord and ascend (ciliated epithelium) through the central canal to the fourth ventricle. Through a similar action he explained the fatal effects occasionally noted when serum (with toxic tricresol preservation) was injected in the lumbar region of children for the relief of epidemic meningitis.

Dr. Seymour Oppenheimer spoke of a case which Dr. Haynes quoted in his original paper. All the evidences of acute meningitis were present, and there were signs of some intra-cranial involvement. The child was operated upon promptly, the findings being sinus thrombosis, mastoiditis, extra-dural abscess, and a large area of encephalitis. The patient recovered. Four weeks later meningitis developed. Lumbar puncture was made and streptococcus mucosus found. Six months later the child again went into coma, and again the streptococcus mucosus was found. It had had previously a very short and acute attack of nasal infection. The post-nasal infection could easily go through the roof of the aural cavity, the bony wall having been removed at the original operation. Fortunately he obtained a post-mortem. He found evidences of an acute meningitis over the region of the middle cranial fossa. In view of the fact that it is impossible to differentiate clinically between circumscribed and diffuse meningitis, it is probable that many cases reported as cured are cases of very circumscribed suppurative meningitis.

The Exploratory Opening of the Sphenoid Sinus. DR. CHARLES PREVOST GRAYSON, Philadelphia.

By this exploratory opening is meant one that can be made so extemporaneously, with so little discomfort to the patient, so little derangement of his ordinary pursuits, that it may be employed for merely exploratory or diagnostic purposes. The artificial opening advocated is made on the anterior wall of the sphenoid sinus, at a point as close as possible to the angle of junction of its floor with its internal wall. As regards the safety and facility with which it is made, this opening is on a par with the puncture of the nasal wall of the antrum beneath the inferior turbinate, or with the simple enlargement of the ostium frontale by means of the rasp or other instrument. This opening can be utilized for both exploratory and therapeutic purposes, and it has the advantage of not involving either the destruction or the crippling of any of the functionally valuable intra-nasal structures.

The technic of the operation is as follows: The inner or nasal portion of the anterior surface of the sphenoid body is exposed as widely as possible by shrinking the turbinates with one of the adrenal preparations. The field of operation is anesthetized with cocain and then rendered ischemic by the adrenal solution. When this has been done the course of the spheno-palatine artery is usually so distinctly visible that it can be readily avoided. The application of a dilute tincture of iodin will be sufficient for purposes of sterilization. The instrument with which the sinus wall is perforated is a straight drill, tipped with a conical burr 6 mm. in length and measuring 2½ mm. from its point to its greatest diameter. The drill is applied 2 or 3 millimeters above the line which divides the anterior from the inferior surface of the sphenoid body and close to the attachment of the ethmoid plate in the middle line. The opening it makes is 2 mm. in diameter, which is quite sufficient to permit the escape of any fluid within the sinus, the introduction of an appropriate irrigation cannula, or, should it seem advisable, the distal jaw of a biting forceps with which the opening may be enlarged. If the exploration of the sinus proves to be pathologically negative, the breach will close within twenty-four hours.

In closing, the author reiterated that his object in exploiting this method of investigating the sphenoid sinus is, in the first place, to dislodge the idea that the osteum sphenoidale should always be the starting point for any operation upon the sinus; to lessen, if successful in this, the frequency with which the middle turbinate is unnecessarily removed, or, in other words, to substitute for a somewhat formidable and tissue-destroying operation one that is technically simple and unattended by any loss of functionally useful tissue; to lessen, also, the hesitation with which some thoroughly qualified men contemplate the surgical invasion of this sinus.

DISCUSSION.

Dr. H. Holbrook Curtis defended the usual operation of opening the sinus through the natural orifice for the reason that the frequent excursions of the cell described by Sieur and Jacob, impinging on both the sphenoid and antral walls, might, by injury, lead to an infection, and because the cell overhung the spheno-palatine fissure and gaglion, these structures, as well as the optic and superior maxillary nerves, might be injured in case Sieur's cell was entered by accident and infected. Dr. Curtis then went into the question of opening the inferior face of the sinus, which Dr. Grayson explained he had not advocated, and the remarks were withdrawn.

Dr. Ross Hall Skillern fancied he could hear Dr. Grayson saying to himself, "How long, O Cataline, wilt thou abuse our patience?" He was not in accord with the essayist as to the indications for, or the method of opening the sphenoid. Unless purulent secretions are present in the spheno-ethmoidal fissure in frank cases, or the typical pressure symptoms are present in the closed and latent type, he does not perceive the indication for exploratory opening. As to the method, he prefers the one which is constantly under control of the eye. This is nearly always possible in the presence of disease, for it is a well-known fact that a diseased sinus is always easier to sound than a healthy one, this being due to the enlargement of the drainage passages by the constantly outflowing secretion. In his experience this was peculiarly adaptable to the sphenoid. Under these circumstances, after the sound has found the ostium and has penetrated into the sinus, it is a simple matter to introduce a small Hajek curette or an evulsor and to make a comparatively large opening in the anterior wall and at its thinnest part. All danger of penetrating the cribriform plate or completely missing the sinus was obviated. It would seem that this is really the safest and sanest method of approaching this cavity for diagnostic and therapeutic purposes.

Dr. Frank R. Spencer said one can easily use the Andrews probe to find the opening. It is perfectly justifiable to remove the posterior half or one-third of the middle turbinate in order to expose the sphenoid cavity. The thin anterior wall can be broken down and an opening gained which will be large enough for therapeutic purposes. That can be done with cocain anesthesia in simple cases.

Dr. John C. Roe said: "It is not difficult to find the natural opening of the sphenoidal sinus, although I think Dr. Skillern had located it somewhat lower than I have generally found it. My own method of locating the opening is to pass the probe along the lower border of the middle turbinate, using it as a guide, then by turning the end of the probe slightly upward, the sphenoidal opening is readily entered. In some cases the opening can be seen by anterior rhinoscopy when the middle turbinate is small. When the opening has been found, the cavity can be explored in every direction and any abnormalities dealt with as conditions indicate. Since suppurative conditions are those most commonly found in these cases, free drainage of the cavity, as pointed out by Dr. Grayson in his excellent paper, is of the utmost importance. This I have established most easily by taking away the lower wall with forceps cutting downward in an antero-posterior direction. In the removal of this bone, however, I have not often found it so slender and fragile as Dr Grayson has indicated, but, on the contrary, usually quite hard and dense, sometimes requiring the use of the chisel.

"I may relate, in this connection, that a few years ago there came under my observation an exceedingly interesting case of tic douloureux, due to a myxomatous growth, occupying the entire cavity of the sinus, and on the removal of this growth the tic douloureux subsided.

"When we consider the great anatomical variations in different skulls, in no case would I attempt to drill or chisel an opening into the sphenoid sinus without first having found the natural opening to serve as a guide for the operation."

Dr. Talbot R. Chambers thinks it better to start with the natural opening, enlarging it as much as necessary, rather than to make a second opening.

Dr. Grayson, in closing the discussion, could only repeat that in his opinion the chief objection to the usual method of opening the sphenoid sinus is that it is begun in what is concededly a region of risk instead of being cautiously ended there. He thinks it better from every possible point of view to begin the operation at the point he has designated. Anyone familiar with the normal anatomy of the sinus, as well as with its occasional abnormalities, must admit that this is the safest locality not only at which to enter it but from which to begin the removal of its anterior wall. The terms thin and thick which has been applied to this wall are purely relative, and when one speaks of its lower, being thicker than its upper portion it means no more than a difference of one or two millimeters, which is certainly of no surgical consequence whatever.

It is scarcely conceivable that anyone with the delicacy of touch that the rhinologist possesses can inflict any injury through this operation. Its greatest merit, in fact, lies in its freedom from any unnecessary or concomitant injury. The opening is made under the direct inspection of the eye and there is no flow of blood to obscure the field of operation. In the large majority of cases it is necessary to remove no more than the inner portion of the anterior wall and he has yet to hear a single good reason for continuing the ablation of the middle turbinate in order that we may begin our sphenoid operation at its awkwardly and, comparatively, dangerously placed ostium.

New Technic for the Removal of Intrinsic Growths of the Larynx. Dr. Robert C. Lynch, New Orleans.

Published in full in the July, 1914, issue of The Laryngoscope, *p. 645.*

Proper Fields of Medicine and Surgery in Diseases of the Upper Air Tract. Dr. John A. Thomson, Cincinnati.

Published in full in the August, 1914, issue of The Laryngoscope, *p. 741.*

DISCUSSION.

Dr. Joseph H. Abraham regretted that he had come in too late to hear all of Dr. Thompson's paper, but he heard what was said with reference to Vincent's angina, in which connection he wished to present a remedy which he used in four cases of verified Vincent's angina. It consisted of pure carbolic acid, fused, and applied, upon a cotton-tipped applicator, to the ulcerating surfaces. Two applications were made a day, one when the patient came in the morning, and the other in the afternoon. The acid was allowed to remain in contact with the tissues from two to five minutes, and then neutralized with pure alcohol. The patient was given a simple cleansing mouth-wash to use at home. In three cases, when the patient was sent to the pathologist the next morning, no bacilli and no ulceration could be found. In the fourth case a few scattered organisms could be found in the tonsils and quite a number in an ulcerated tooth socket. He removed the root of a tooth, curetted the cavity, and applied carbolic acid, and the next morning there was no culture. In each case the acid was used twice. Subsequent examination failed to reveal any bacteria, and the patient was dismissed with a cleansing wash.

Dr. Lee M. Hurd considers intra-tracheal injections of various medications with oil one of the best methods of treating these inflammations. Intra-tracheal injections are not employed as they should be. In Vincent's angina any acid will do,—trichloracetic, strong nitric, or any acid or strong caustic. The spirillum will not be found the next day. In very severe cases salvarsan, as suggested, is good. The oily injections will relieve the chronic laryngitis, and are useful in chronic and acute inflammation of the trachea. Sweet oil or petrolatum, about two drams, with some medication, injected into the trachea and bronchi has been found efficacious.

Dr. Talbot R. Chalmers referred to the theory of Sir W. Arbuthnot Lane, of London, concerning the use of petrolatum. According to this theory, petrolatum passes through the intestine and is not absorbed. Dr. Hurd advocates, in consonance with Dr. Thompson, the injection of two drams into the bronchi; Dr. Chambers inquired what became of that oil. If not absorbed, it would become a foreign body.

Dr. Hurd, replying to Dr. Chambers, said the vaselin which he used was probably absorbed.

Dr. George L. Richards thought the demonstration of Dr. Beck of very much greater value to laryngologists than theorizing about the absorption of this or that oil. He had been especially impressed with the picture showing the blood vessels, which illustrated so clearly why hemorrhage takes place after these operations. The sections demonstrated also why there is infection and more or less muco-purulent periostitis after these operations. Work such as Dr. Beck has presented leads to more exact knowledge. Therapeutics is largely a matter of theory, but this histo-pathological work is certainly conducive to exact knowledge.

Dr. George F. Cott recalled that in 1901, Dr. Thompson had read a paper on this subject. Since that time he had followed the suggestions then given, with very good results.

Dr. Theodore Corwin thought the intra-tracheal injections most valuable. Patients could be taught to make the injections themselves, using a long dropper and injecting fifteen or twenty minims two or three times within ten minutes and repeating this every half hour or hour, so long as the cough was annoying. He used vaselin or other oil in combination with menthol, 1 or 2 per cent, camphor 1 per cent, or anything that might be desired. For office treatment the tracheal syringe was preferable, giving doses of one or two drams. It should be preceded by a downward spray of 2 per cent menthol to render the larynx less sensitive to manipulation with the syringe.

Dr. Richards added that some years ago he used oils of one kind or another, and instructed his patients to use nebulizers. He has reached the conclusion that oils are nearly valueless. It was better to employ something corresponding as nearly as possible in specific gravity to that of the normal serum.

Dr. Thompson, in closing the discussion, said that when Dr. Harris sent out his circular letter asking for suggestions concerning this meeting he thought it wise to have several papers concerning the treatment of the diseases of the upper air passages. Dr. Beck agreed to discuss the scientific side, while he took the therapeutic side of the question. He had endeavored to discuss the matter from the point of view of every-day practice. The most important point, and one which he would reiterate, was expressed in the opening sentence of his paper: "One-half of all the diseases it is our daily work to treat are curable by medicinal means alone."

Dr. Beck, in closing the discussion, said about 5 per cent of his cases were amenable to non-surgical treatment. He had reference to diseases of the upper respiratory tract not those of the trachea.

Tuberculosis of the Middle Ear. Dr. H. H. Briggs, Asheville, N. C.

The frequency of tuberculosis of the middle ear in persons suffering from tuberculosis elsewhere in the body has been placed at twenty-five per cent. Of 1,500 school children examined by Westmacotte, 2 per cent were found to have tuberculosis of the middle ear. The disease is probably of far greater frequency than statistics show, and the true diagnosis is often mistaken because its onset is so insidious that attention is not easily called to the condition and no observation is made. Moreover, when the case presents itself the condition usually has passed from that of a pure tuberculous process and becomes a mixed infection, the symptoms of the suppurative condition making the true nature of the initial disease. The careless manner of classifying all discharging ears as suppurative otitis media, without recourse to the microscopic or inoculation tests, is unfortunate.

The middle ear must be regarded as belonging anatomically and bacteriologically to the upper respiratory tract, as insisted upon by Goldstein, who considers primary tuberculous infection of the middle ear of respiratory origin.

Among the predisposing factors may be classed general debilitating diseases, the hereditary influence of tuberculosis, syphilis, association with tuberculous individuals, unhygienic environment, over-crowding, poor food, cachexia,—in short, any condition of surroundings or constitution which induces a lowering of the systemic power to combat infection. Among the predisposing causes of more immediate influence may be regarded (1) the existence of a tuberculous lesion elsewhere in the body, especially pulmonary tuberculosis with cavitation, and tuberculous disease of the glandular system; (2) abnormal conditions of the upper respiratory tract, including the presence of naso-pharyngeal adenoid growths which have been shown by microscopic examination and inoculation tests to be the frequent seat of a latent tuberculosis; (3) infancy and childhood offer a predisposition for various reasons.

The channels of infection are: 1. Mechanical, through the Eustachian tube, either air-borne or introduced into the tympanic cavity by the aid of particles of mucus or foreign matter during the acts of swallowing, coughing, sneezing, or blowing the nose. 2. Infection along the Eustachian tube by other than mechanical means. 3. Through the blood channels. 4. Through the lymphatics. 5. Via the external auditory canal. 6. By extension of an intra-cranial infection through the internal auditory canal, Fallopian canal or the labyrinth. This is mentioned as merely a possibility.

To the author the mechanical theory of infection, especially secondary, seems simplest, easiest and most probable in the great majority of cases. The greatest number of cases occur in early childhood and advanced phthisis, when the conditions favorable to the mechanical passage of infectious material through the Eustachian tube are at their maximum.

Clinically, two rather distinct forms of tuberculosis of the middle ear manifest themselves,—acute and chronic. In each may be found all the changes, from slight infiltration of the mucous membrance to extensive necrosis of the temporal bone. Rapid loss of tissue is characteristic of the acute form, resulting from ulceration of the tubercles throughout the mucosa. In the chronic form the process runs an asthenic course, and infiltration, caseation and necrosis follow less rapidly and with more characteristic tuberculous sequence.

The essential symptom which differentiates tuberculous otitis from other forms is the absence of pain. Even though the destructive process is rapid and the appearance of the membrana *per se* simulates an acute purulent otitis there is seldom any complaint of pain.

In determining the diagnosis, the family history should be carefully considered with regard to tuberculosis, and the patient's habits, residence, environment should be ascertained to determine whether there has been an undue exposure to tuberculous persons or unhygienic surroundings. Facial paralysis, especially in children, occurs in one-third of the cases, against one to two per cent in non-tuberculous conditions, and is of special diagnostic significance. The sanious and foul condition of the discharge, especially when particles of bone are incorporated, excites suspicion. Marked impairment of hearing, absence of headache, occurrence of hemorrhage, are considered by some as diagnostic points. Tuberculin injections and blood pressure changes (hypotension) are also considered. The only positive means of diagnosis, however, are (1) finding microscopically in the discharge or granulations the tubercle bacillus, or (2) giant and epithelioid cells and caseation in the tissue. (3) By experimental inoculation, reproducing tuberculosis. The prognosis is, as a rule, unfavorable.

The treatment naturally divides itself into hygienic, dietetic, medical, and surgical, as the case indicates. The use of tuberculin has proved so successful in so many forms of tuberculosis that no tuberculous process in any way localized can be considered invariably to contra-indicate its use. The author could see no reason why it should not be indicated and of decided value in properly selected cases of tuberculosis of the middle ear.

DR. FRANK R. SPENCER mentioned a method of making the diagnosis of tuberculosis of the middle ear, consisting of cleansing the canal first, introducing an aspirator which he has brought from Berlin, aspirating and injecting the pus into a guinea-pig. The pus, when aspirated, might not show tubercle bacilli, but the organisms could be positively demonstrated after the injection into the guinea-pig by the examination of the animal's organs several weeks later.

Corrective Rhinoplasty. DR. LEE COHEN, Baltimore.

Published in full in the June, 1914, issue of THE LARYNGOSCOPE, *p. 565.*

DISCUSSION.

DR. JOHN O. ROE: "Dr. Cohen's paper is a verification of the old saying that 'imitation is the sincerest flattery.' I am sorry, indeed, to see that Dr. Cohen is inclined to give me scant recognition as the originator of subcutaneous plastic surgery in the correction of nasal deformities, for it must be recognized and distinctly understood that this method of correcting nasal deformities subcutaneously originated entirely with me.

"In describing the method of making the initial incision from the interior of the nose, Dr. Cohen says: 'For these submucous operations, then, incision as first advocated by Roe should be made within the vestibule of the nose.' I wish to say that this method is not simply advocated by me but, as a matter of fact, was originated by me. It is my method which Dr. Cohen has copied from start to finish, without the courtesy of giving credit for it.

"Dr. Cohen on one occasion had the privilege of witnessing my work, which I am always glad to show my confreres and which, as he stated at that time, was the incentive that gave him his special interest in the correction of nasal deformities. The second case that Dr. Cohen mentions in his paper—the case of the congenitally over-sized nose, causing the young man so much annoyance and mental distress—Dr. Cohen had the courtesy to refer to me and came with the patient to my office to see the operation, which I performed at that time in his presence on May 30, 1912. In connection with this operation, he saw the distinct method of elevating the skin or 'undermining' it, as he chooses to term it, the forms of dressing necessary in these cases, the use of my saddle splint, which I have used from the beginning of this work, and the method of holding it in place with the strap of adhesive plaster across the face, the use of the strips or pieces of adhesive plaster under the saddle, one placed above the other, in order to produce extra-pressure at points where necessary, the making of the nose narrower by the removal of cartilage and bone and by fracture, the shortening of the nose by taking out a sufficient amount of cartilage of the anterior portion of the septum and of the alae and stitching the projecting part of the nose back as far as necessary to correct the deformity, and the use of the sling of adhesive plaster to draw up and support the end of the nose after operation. All of these points and others, in the management and technic, Dr. Cohen had the opportunity to see and to learn about, for all of them were employed on this patient, whose case was a complicated one.

"In this case also the nose was altogether too high, and had to be cut down, and the method by which it was done, Dr. Cohen had had the discourtesy to give credit to Joseph of Berlin, whereas the same operation was described and illustrated by me in an article on 'The correction of angular deformities of the nose by a subcutaneous operation,' and published in the *Medical Record*, New York, July 18, 1891, which was seven years previous to any published article by Joseph on this subject.

"It would have done Dr. Cohen no harm to have had the courtesy to mention the facts as above stated instead of leading the reader to infer that these methods were largely his own methods and thereby indirectly trying to appropriate them to himself. Joseph, of Berlin, is also quite in line with the European Germans, many of whom ignore American authors, although quite willing to appropriate their work.

"The technic which Dr. Cohen has collected and described in his paper, however, applies only to the correction of angular deformities of the nose, which he chooses to call 'hump nose,' or to the correction of unduly large or 'over-sized' noses, as he designates them and to deviated noses, the extent to which he has pursued the subject up to the present time. The other varieties of deformities, those attended with depressions and other distortions of the nose he will find much more difficult."

In emphasizing the fact of having originated the method of correcting nasal deformities by operation subcutaneously performed, Dr. Roe further said: "It does not matter what modifications may be made in the operation in any particular case, whether the operation is done by cutting up or cutting down, with a knife, with bone scissors, with a saw, with a chisel, or with whatever instrument or instruments that can be most advantageously employed in that particular case, the fact remains that the subcutaneous correction of nasal deformities is a method which I have the honor, if honor there be, to have originated and first employed. This fact should not, as a matter of professional ethics, be ignored or appropriated by another without due recognition."

DR. COHEN, in closing the discussion, said he had no intention, in his references to Dr. Roe's work, of detracting therefrom. He insisted, however, that there was no systematic description of this work prior to that mentioned in the paper. He had operated upon about ten cases before he ever saw Dr. Roe operate.

Use of Vaccines is the Treatment of Chronic Diphtheria Carriers. DR. ARTHUR I. WEIL, New Orleans.

Published in full in the September, 1914, issue of THE LARYNGOSCOPE. *p. 804.*

BOOK REVIEWS.

Asthma and Its Radical Treatment. By JAMES ADAMS., M. A., F. R. F. P. S., Hamilton Dispensary Aural Surgeon, Glasgow Royal Infirmary; Pp. 184, with 4 illustrations. Paul B. Hoeber, New York, 1913. Price, $1.50, net.

The author believes that asthma is primarily a toxemia. This toxemia arises partly in the bowel, partly in the tissues. It arises partly by absorption of nitrogenous poisons resulting from intestinal putrefaction under microbic action; but mainly it is due to an error in nitrogenous metabolism, the result of imperfect oxidation or enzyme action. The toxemia, whether arising in bowel or tissues or both, tends to show itself first as catarrh, later as spasm, in the respiratory tract.

The giving of horse-serum whether diphtheria, antitoxin or otherwise, for tho treatment of asthma, as is sometimes done, is to be deprecated, especially where there is idiosyncrasy to eggs, fish, shellfish or horses. Asthma can in most cases be absolutely controlled by due attention to dietary and efficient open-air exercise, including occasional fasting.

The asthmatic paroxysm involves bronchiole spasm and a hyperemia of the mucous membrane. Both result from toxemia. This hyperemic condition may vary from that of the recurrent "bronchitis" of children to "angioneurotic" edema and acute pulmonary edema, according to the nature and amount of the toxemia. It may, especially in children, long precede the onset of typical spasm.

The author admits the value of nasal treatment but holds it subsidiary to the treatment of tho toxemia. This toxemia alters the asthmatic so that his condition becomes like a powder magazine; nasal disease is apt to supply sparks which cause the explosions of asthma.

He deprecates the excessive nasal surgery that is so often inflicted on the asthmatic. Cauterization of the septal tubercle is sometimes a valuable temporary procedure, but cauterization of the lower turbinals is an unnecessary addition.

There is a toxemic basis for hay-fever kindred to that of asthma; it seems to be slightly different, favoring the irritant action of certain pollens in the nose and the production of coryza rather than of bronchial spasm, though that also is produced in many cases. The toxemia is the predisposing cause of hay-fever, the pollen the exciting cause.

Adams claims that every case of uncomplicated asthma, properly handled, will improve and most of them will get well. In 100 cases of more than ten years' standing, which he reports in detail, 63 were cured or "practically cured," 30 were improved and 7 not improved.

The treatment advocated is principally dietetic. Care should, however, be taken to establish normal nasal respiration if this be impeded. Not only should the food be limited, in quality, quantity and simplicity, to the actual requirements of the individual, but where the asthma is pronounced the patient must fast one day a week.

Active open-air exercise is necessary. The life of the asthmatic should be much the same as that of the convalescent consumptive; windows open night and day, rooms as free of dust as possible, not less than two hours open-air exercise daily. Medicinally some of the usual formulas are given to relieve the paroxysms, but a mercurial purge is given at least once a week to every patient.

The work shows evidence of painstaking observation and careful analysis of cases observed in the practice of the author. Although lacking experimental confirmation of the toxemic origin of asthma, it merits careful consideration, especially in view of the therapeutic success evidenced in the reported cases. SCHEPPEGRELL.

The Career of Dr. Weaver. By Mrs. Henry Backus, pp. 379, with illustrations by William Van Dresser. L. C. Page & Co., 1913. Price, $1.25.

The busy doctor needs recreation even in his literature and he will find this novel, with episodes from the life of a busy, ambitious laryngologist, both interesting and fascinating.

IN MEMORIAM.

Dr. Joseph Scribner Gibb, of Philadelphia, was stricken with apoplexy while playing golf on the links of the Overbrook Golf Club, near Philadelphia, and died shortly afterwards, on November 2, 1914.

Dr. Gibb was born in Philadelphia, February 11, 1859. He graduated from the medical department of the University of Pennsylvania in 1880, serving as a resident physician at the Philadelphia Hospital, taking up the practice of general medicine. In the early nineties he began the practice of laryngology and otology to which he devoted himself exclusively during the latter years of his life. He was a member of the College of Physicians of Philadelphia, and at the meetings of the Section on Otology and Laryngology his papers were always welcomed by the Fellows and listened to with attention. He served at one time as Chairman of the Section, during which period his enthusiastic labors resulted in the addition of much valuable material to its scientific work. Dr. Gibb was a member of the American Laryngological Association and a faithful attendant at its meetings, at many of which he read valuable contributions.

For many years Dr. Gibb was laryngologist and aurist to Girard College in Philadelphia, a position which devolved upon him great responsibility and arduous labor.

FRANCIS R. PACKARD.

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